



## Workshop Manual Fox 2004 ➤

### Communication

Edition 01.2012





## List of Workshop Manual Repair Groups

### Repair Group

91 - Radio, telephone, navigation system



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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## 91 – Radio, telephone, navigation system

## 1 Communication Systems

Communications systems in the Fox mostly include radio equipment, CD player, antenna systems, speakers and the multifunction steering wheel.

Some of these equipment items are optional; thus, not all of the systems might be installed in the vehicle.

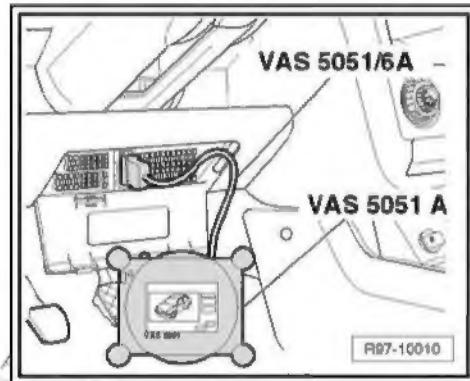
It is essential to understand the operation and handling of the communication systems ⇒ Instruction manual .

The communication systems are equipped with self-diagnosis and troubleshooting functions  $\Rightarrow$  [page 1](#).

## 1.1 Locating defects and indicating faults

For troubleshooting, use the Diagnosis, Measurement and Information System -VAS 5051A/52-.

- Connect the Diagnosis, Measurement and Information System -VAS 5051A/52- to the 16-pin diagnosis connector -T16-  
⇒ General information; Rep. gr. 97 ; Cables and wiring harnesses .
  - Turn on the ignition.
  - Turn off all electrical devices.
  - Proceed by selecting the desired functions ⇒ Vehicle diagnostic tester.





## 2 CD Player -R89-



### WARNING

*Before working on the electrical system, it is necessary to disconnect the battery earth strap ⇒ Electrical starter; Rep. gr. 27 ; Starter, alternator, battery .*



### Note

- ◆ Check whether the vehicle has a coded radio. If so, request the anti-theft code before disconnecting the Battery -A- earth strap.
- ◆ Safe working conditions for repairing the electrical system are created by disconnecting the ground cable from the Battery -A- (interrupting the current).
- ◆ Upon reconnecting the Battery -A- , check the vehicle equipment (radio, clock, power locks and windows, etc.) according to the repair manual and/or instructions for use.

### 2.1 CD Player -R89- „GAMA“ ▶ 12/07 and/ or „RCD 300“ 08/05 ▶

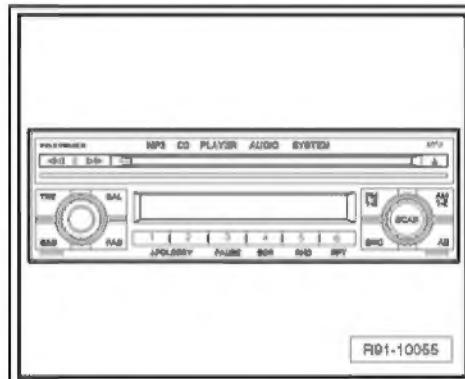


### Note

*Only the CD Player -R89- „RCD 300“ has the MP3 function.*

The "CD player" -R89- „GAMA“ and/or „RCD 300“ consist of the device ⇒ [Item 6 \(page 3\)](#) , the Antenna -R11- ⇒ [Item 3 \(page 3\)](#) , and/or Windscreen antenna -R31- ⇒ [Item 1 \(page 3\)](#) with an Antenna amplifier -R24- ⇒ [Item 2 \(page 3\)](#) , and its respective loudspeakers:

- ◆ one Left front speaker for treble sounds -R20- and one Right front loudspeaker for treble sounds -R22- ⇒ [Item 7 \(page 3\)](#) , in each lining of column A.
- ◆ one Left front speaker for bass sounds -R21- and one Right front speaker for bass sounds -R23- ⇒ [Item 5 \(page 3\)](#) , in each lining of the front doors.
- ◆ a Left rear bass speaker -R15- and a Right rear bass speaker -R17- ⇒ [Item 4 \(page 3\)](#) in each lining of the rear doors.



### 2.1.1 "CD player" -R89- „GAMA“ and/or „RCD 300“ - general overview of assembly



1 - Windscreen antenna -R31-

- Additional information (► 04/07) [⇒ page 38](#)

2 - Antenna amplifier -R24-

- Additional information (► 04/07) [⇒ page 38](#)
- Remove and install [⇒ page 38](#).

3 - Antenna -R11-

- Additional information (► 12/07) [⇒ page 39](#)
- Additional information (01/08) [⇒ page 40](#)

4 - Left rear bass speaker -R15- and/or Right rear bass speaker -R17-

- Installed in the rear side or rear door linings.
- Remove and install [⇒ page 34](#).

5 - Left front bass speaker -R21- and/or Right front bass speaker -R23-

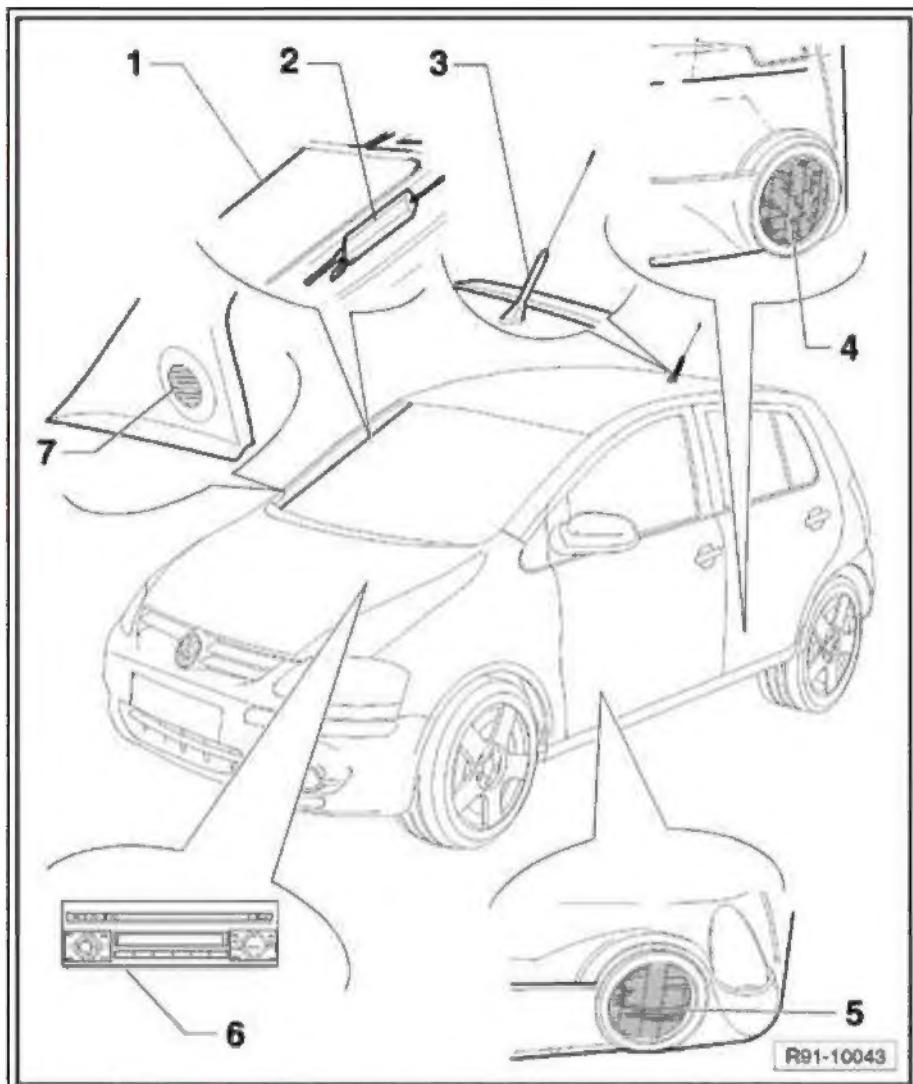
- Installed in the linings of the front doors.
- Remove and install [⇒ page 34](#).

6 - "CD player" -R89- „GAMA“ and/or „RCD 300“

- Remove and install [⇒ page 3](#).
- Connector pinout [⇒ page 5](#).
- Additional anti-theft system information [⇒ page 7](#).

7 - Left front treble speaker -R20- and/or Right front treble speaker -R22-

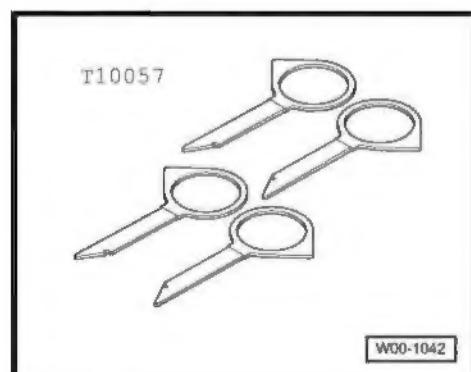
- Installed in the lining of column A.
- Remove and install [⇒ page 34](#).



**2.1.2 "CD player" -R89- „GAMA“ and/or „RCD 300“ - remove and install**

Special tools and workshop equipment required

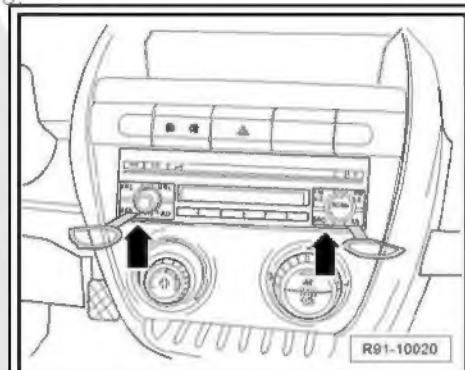
- ◆ Key -T 10057-



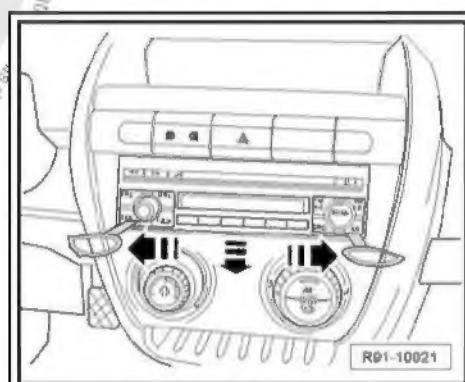


**Removal:**

- Turn off the ignition and all electrical devices, then remove the ignition key.
- If the vehicle is equipped with a CD player, remove any CD from the device ⇒ Radio instruction manual.
- Introduce a Key -T 10057- into the frontal slots -arrows- of the "CD player" -R89- „GAMA“ and/or „RCD 300“, according to the following indication:



- Remove the "CD player" -R89- „GAMA“ and/or „RCD 300“ from the dashboard, by moving the Key -T 10057- in the direction of the -arrows- and pulling it.
- Disconnect the connectors of the "CD player" -R89- „GAMA“ and „RCD300“ and the cable for the Antenna -R11- .



- After removing the "CD player" -R89- „GAMA“ and „RCD 300“, remove each Key -T 10057- by pressing the lock -arrow-.

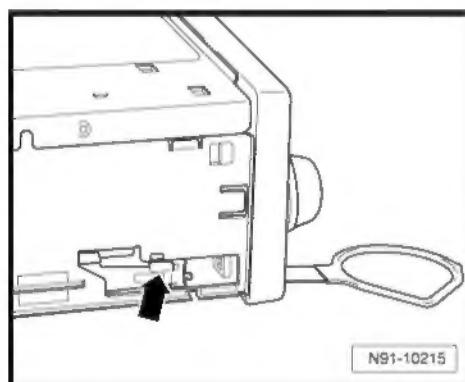
**Installation:**

- Connect the connectors of the "CD player" -R89- „GAMA“ and „RCD300“ and the Antenna -R11- .
- Install the "CD player" -R89- „GAMA“ and „RCD 300“, by pushing it inward the housing in the panel until it fits thoroughly.



**WARNING**

*Never press the command keys or the display during installation, otherwise the device may be damaged.*



- Activate the electronic anti-theft alarm system, if necessary  
⇒ [page 8](#) .



### 2.1.3 "CD player" -R89- „GAMA“ and/or „RCD 300“ - connectors pinout (LAM)

Multiple connector I, 20-pin connector -T20-

7 - Telephone, positive (+)

8 - Second display, CLOCK

9 - Second display, DATA

10 - Second display, ENA

11 - Remote control, REM

12 - Positive (-) telephone

16 - Amplifier (1A)

17 - Amplifier (100mA)

Multiple connector II, 8-pin connector -T8-

1 - Rear speaker, right side, positive

2 - Rear speaker, right side, negative

3 - Front speaker, right side, positive

4 - Front speaker, right side, negative

5 - Front speaker, left side, positive

6 - Front speaker, left side, negative

7 - Rear speaker, left side, positive

8 - Rear speaker, left side, negative

Multiple connector III, 8-pin connector -T8-

1 - Gala

2 - Mute

3 - Self-diagnosis/cable K

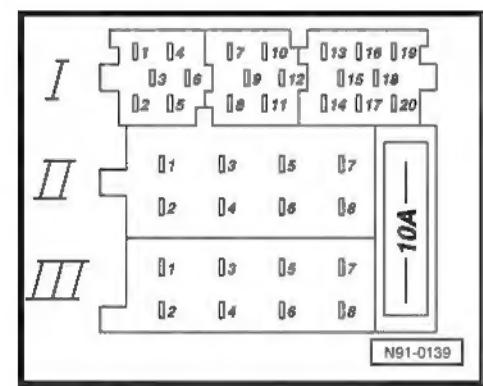
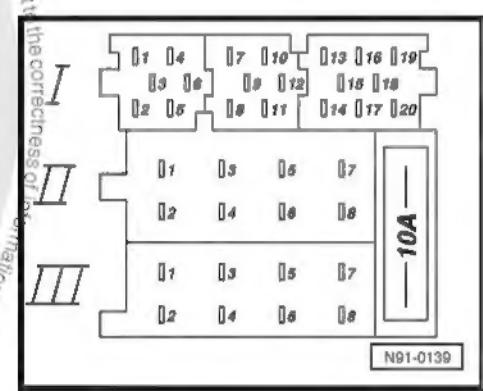
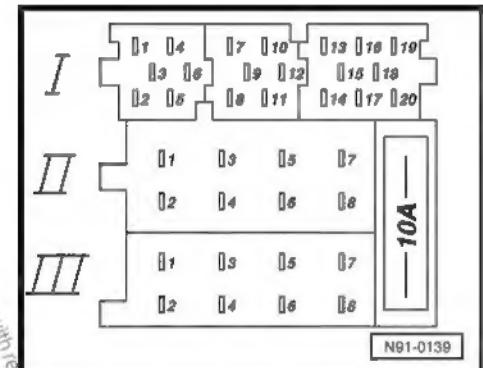
4 - Connection for on/off operations controlled by the ignition key (contact S)

5 - Battery (SAFE)

6 - Lighting (terminal 58b)

7 - Battery, positive (terminal 30)

8 - Battery, negative (terminal 31)

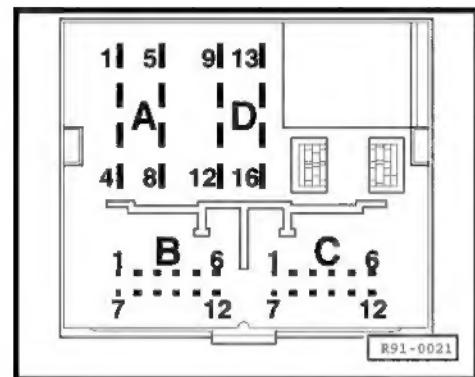




## 2.1.4 "CD player" -R89- „GAMA“ and/or „RCD 300“ - connectors pinout (EU)

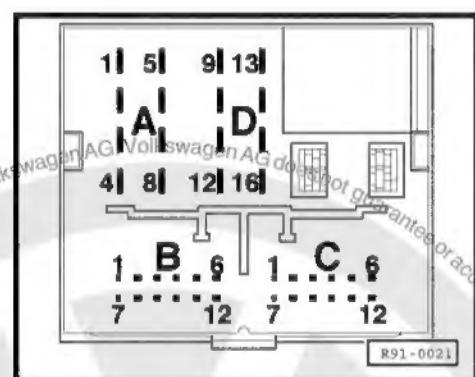
Multiple connector A, 8-pin connector -T8-

- 1 - Rear speaker, right side, positive
- 2 - Front speaker, right side, positive
- 3 - Front speaker, left side, positive
- 4 - Rear speaker, left side, positive
- 5 - Rear speaker, right side, negative
- 6 - Front speaker, right side, negative
- 7 - Front speaker, left side, negative
- 8 - Rear speaker, left side, negative



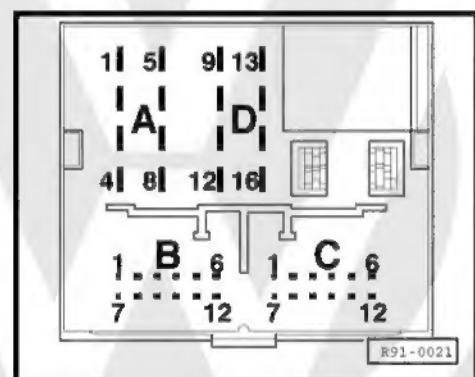
Multiple connector B, 12-pin connector -T12-

- 2 - CD-X audio, negative
- 4 - CD power, permanent
- 6 - CD-Bus radio data
- 8 - CD-X left audio
- 9 - CD-X right audio
- 10 - Positive connection
- 11 - CD-Bus
- 12 - CD-Bus Clock



Multiple connector C, 12-pin connector -T12-

- 1 - Not used
- 2 - Not used
- 3 - Not used
- 4 - Not used
- 5 - Not used
- 6 - Telephone audio, negative
- 7 - Not used
- 8 - Not used
- 9 - Not used
- 10 - Not used
- 11 - Not used
- 12 - Telephone audio, positive

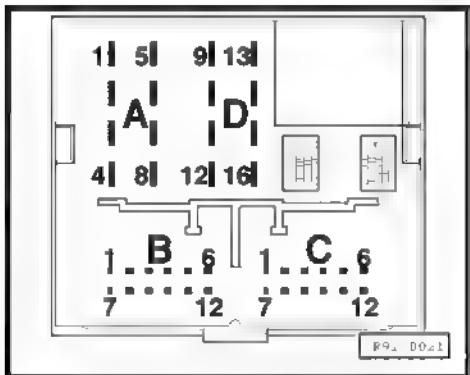




*Multiplexed by Volkswagen P+AG, Vöksdorf AG does not guarantee the correctness of the information*

#### Multiplex connector D, 6-pin connector -T6-

- 9 - CAN-Bus, positive
- 10 - CAN-Bus, negative
- 11 - Mute, low
- 12 - Battery, negative (terminal 31)
- 15 - Battery, positive (terminal 30) permanent
- 16 - (terminal 30) ultra-sound sensor



#### 2.1.5 "CD player" -R89- „GAMA“ and/or „RCD 300“ - anti-theft system

The "CD player" -R89- „GAMA“ and/or „RCD 300“ is equipped with an electronic anti-theft system.

After the electronic anti-theft system is activated for the first time, an internal code is saved in the "CD player" -R89- „GAMA“ and/or „RCD 300“ and in the vehicle's Combined instrument -K-. If, during repair work, the "CD player" -R89- „GAMA“ and/or „RCD 300“ should experience a power outage (for example, when removing the "CD player" -R89- „GAMA“ and/or „RCD 300“ or the Battery -A-), a data exchange occurs between the "CD player" -R89- „GAMA“ and/or „RCD 300“ and the Combined instrument -K- after the voltage supply is restored.

In this manner, a comparison is made between the internal code of the "CD player" -R89- „GAMA“ and/or „RCD 300“ and that of the Combined instrument -K-. If the code is identical, the Combined instrument -K- recognizes that the "CD player" -R89- „GAMA“ and/or „RCD 300“ installed belongs to the vehicle, and the radio becomes operational without the need for entering the anti-theft code.



##### Note

- ◆ Each "CD player" -R89- „GAMA“ and/or „RCD 300“ has its own code.
- ◆ The anti-theft system code is located on the card of the "CD player" -R89- „GAMA“ and/or „RCD 300“, along with the identification number of the equipment ⇒ Radio Instruction Manual
- ◆ For safety reasons, the card of the "CD player" -R89- „GAMA“ and/or „RCD 300“ should not be kept inside the vehicle. If necessary, request the code from the client.
- ◆ If a "CD player" -R89- „GAMA“ and/or „RCD 300“ is replaced, the replacement equipment code must be used. The customer must be informed that the code number was changed.

The electronic anti-theft system starts operating and blocks the radio whenever

- ◆ the Battery -A- is disconnected.
- ◆ the "CD player" -R89- „GAMA“ and/or „RCD 300“ is removed from the vehicle
- ◆ the Combined instrument -K- is replaced



## 2.1.6 "CD player" -R89- „GAMA“ and/or „RCD 300“ anti-theft system - activate



### WARNING

*If the anti-theft code is not known, it may be obtained through the ELSA system (Specific vehicle information), or through the Diagnosis, Measurement and Information System -VAS 5051A /52-, by using the chassis number of the "CD player" -R89- „GAMA“ and/or „RCD 300“, located on the equipment, together with the vehicle's chassis number*

- Turn on the "CD player" -R89- „GAMA“ and/or „RCD 300“

The display will automatically indicate „SAFE“ and, then, „1000“ on its visor. There is no need to push any button.

- With the aid of radio station memory buttons 1 and 4, enter the code of the "CD player" -R89- „GAMA“ and/or „RCD 300“. With key 1, select the first code digit, with key 2, the second digit, and so forth.
- Then, press the rotary pressure button on the right side, keeping it pressed until the anti-theft coding is activated. The "CD player" -R89- „GAMA“ and/or „RCD 300“ becomes operational and is turned on.



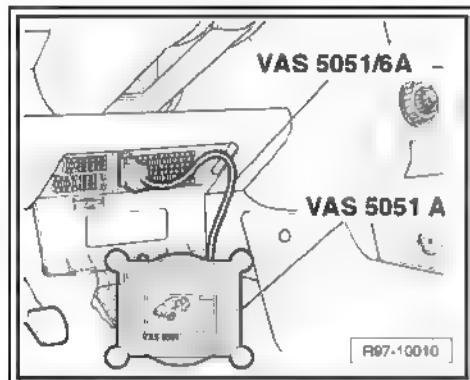
### Note

*If, when activating the electronic anti-theft system, a code number is incorrect, the indication „SAFE“ will blink on the display, followed by the indication „1000“. At this time, it is possible to repeat the entire operation. If an incorrect code number is entered again, the equipment will be blocked for approximately one hour, which means that it will not be operational. The blocking is signed on the left side of the display through the indication „SAFE“ (permanent) and a „2“ (small). This notification will disappear after one hour, at which point it is possible to input the code again with the key in the ignition and the device connected to the vehicle. The »two-attempt/one-hour block cycle« remains valid.*

## 2.1.7 "CD player" -R89- „GAMA“ and/or „RCD 300“ - adapt

For adapting, use the Diagnosis, Measurement and Information System -VAS 5051A /52- .

- Connect the Diagnosis, Measurement and Information System -VAS 5051A/52- to the 16-pin diagnosis connector -T16- ⇒ General information; Rep. gr. 97 ; Cables and wiring harnesses
- Turn on the ignition.
- Turn off all electrical devices
- Proceed by selecting the desired functions ⇒ Vehicle diagnostic tester.



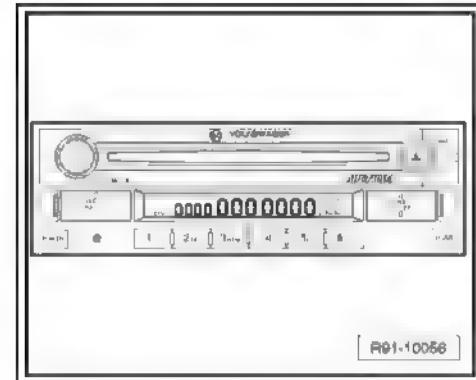


## 2.2 "CD player" -R89- „Clarion MP3“ - 07/05

►

The "CD player" -R89- „Clarion MP3“ consists of the device  
⇒ [Item 6 \(page 9\)](#) , the Antenna -R11- ⇒ [Item 2 \(page 9\)](#) ,  
and/or Windscreen antenna -R31- ⇒ [Item 1 \(page 3\)](#) with an Antenna amplifier -R24- ⇒ [Item 2 \(page 3\)](#) , and its respective  
loudspeakers:

- ◆ one Left front speaker for treble sounds -R20- and one Right front loudspeaker for treble sounds -R22- ⇒ [Item 7 \(page 9\)](#) , in each lining of column A.
- ◆ one Left front speaker for bass sounds -R21- and one Right front speaker for bass sounds -R23- ⇒ [Item 5 \(page 9\)](#) , in each lining of the front doors.
- ◆ a Left rear bass speaker -R15- and a Right rear bass speaker -R17- ⇒ [Item 4 \(page 9\)](#) in each lining of the rear doors.



### 2.2.1 "CD player" -R89- „Clarion MP3“ - assembly overview

#### 1 - Windscreen antenna -R31-

- Additional information (► 04/07) ⇒ [page 38](#)

#### 2 - Antenna amplifier -R24-

- Additional information (► 04/07) ⇒ [page 38](#)
- Remove and install ⇒ [page 39](#) .

#### 3 - Antenna -R11-

- Additional information (► 12/07) ⇒ [page 39](#)
- Additional information (01/08) ⇒ [page 40](#)

#### 4 - Left rear bass speaker -R15- and/or Right rear bass speaker -R17-

- Installed in the rear side or rear door linings.
- Remove and install ⇒ [page 34](#) .

#### 5 - Left front bass speaker -R21- and/or Right front bass speaker -R23-

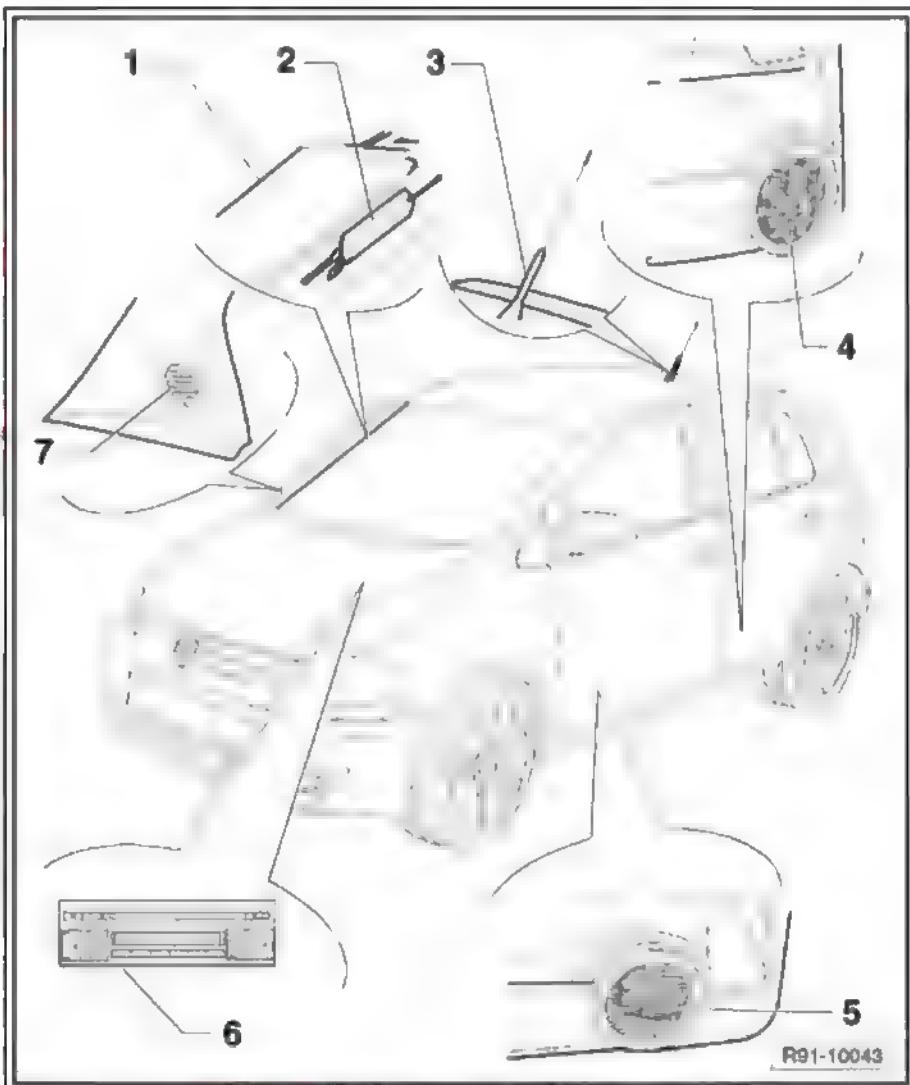
- Installed in the linings of the front doors
- Remove and install ⇒ [page 34](#) .

#### 6 - "CD player" -R89- „Clarion MP3“

- Remove and install ⇒ [page 10](#) .
- Connector pinout ⇒ [page 11](#) .
- Additional anti-theft system information ⇒ [page 12](#) .

#### 7 - Left front treble speaker -R20- and/or Right front treble speaker -R22-

- Installed in the lining of column A.



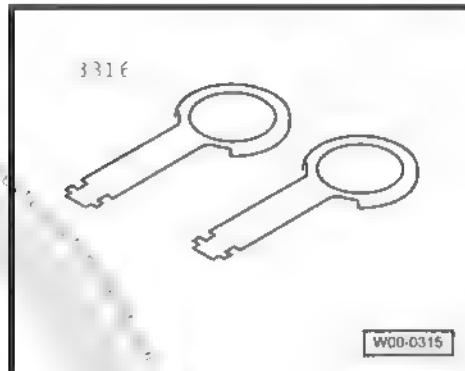


- Remove and install [page 34](#).

## 2.2.2 "CD player" -R89- „Clarion MP3“ - remove and install

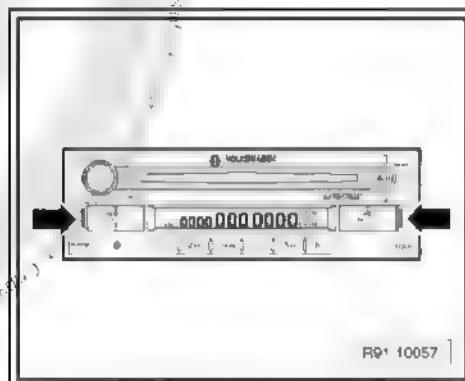
Special tools and workshop equipment required

- ◆ Puller -3316-

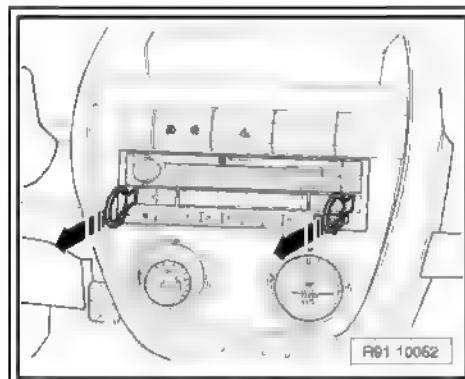


### Removal:

- Turn off the ignition, all the electrical devices, and remove the key from ignition.
- Remove the CD, if any, from the equipment  $\Rightarrow$  Radio Instruction Manual.
- Insert the Puller -3316- into the front notches -arrows- of the device as indicated next:



- Remove the "CD player" -R89- „Clarion MP3“ from the panel, pulling it out with the Puller -3316- in the direction of the -arrows-.
- Pull the CD player -R89- „Clarion MP3“ from its housing until the rear connectors are accessible.
- Disconnect the connectors of the "CD player" -R89- „Clarion MP3“ and cable for the Antenna -R11- .





- After removing the "CD player" -R89- „Clarion MP3“, remove the Puller -3316- by pressing the lock -arrow -.

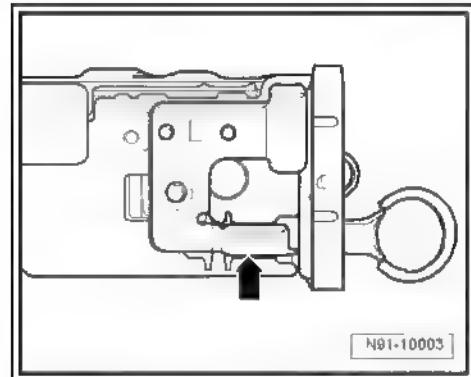
Installation:

- Connect the connectors for the "CD player" -R89- „Clarion MP3“ and the Antenna -R11- .
- Install the "CD player" -R89- „Clarion MP3“, by fitting it completely into the housing in the panel.



#### WARNING

*During installation, never press the display nor the command keys; otherwise, the equipment may be damaged.*



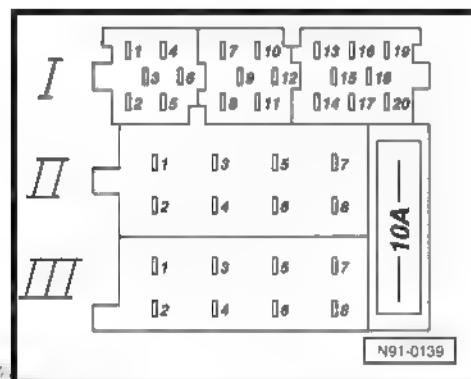
- Activate the electronic anti-theft alarm system, if necessary  
⇒ [page 12](#) .

### 2.2.3 "CD player" -R89- „Clarion MP3“ - connector pinout (MEX)

Multiple connector I, 20-pin connector -T20-

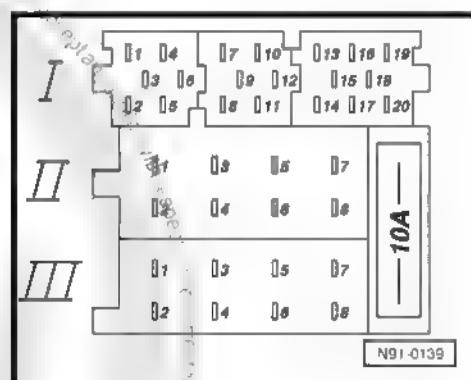
7 - Telephone, positive (+)

12 - Telephone, negative (-)



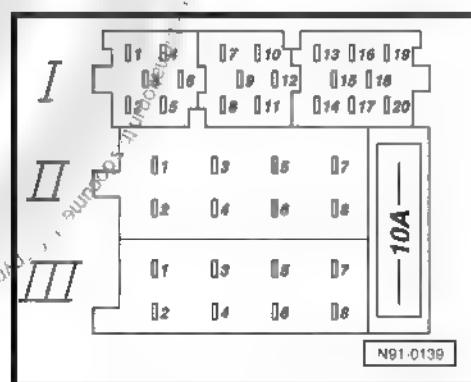
Multiple connector II, 8-pin connector -T8-

- 1 - Rear speaker, right side, positive
- 2 - Rear speaker, right side, negative
- 3 - Front speaker, right side, positive
- 4 - Front speaker, right side, negative
- 5 - Front speaker, left side, positive
- 6 - Front speaker, left side, negative
- 7 - Rear speaker, left side, positive
- 8 - Rear speaker, left side, negative



Multiple connector III, 8-pin connector -T8-

- 1 - Alarm SW
- 2 - Mute
- 4 - Connection for on/off operations controlled by the ignition key (contact S)
- 5 - Battery (SAFE)
- 6 - Lighting (terminal 585)
- 7 - Battery, positive (terminal 30)
- 8 - Battery, negative (terminal 31)





## 2.2.4 "CD player" -R89- „Clarion MP3“ - anti-theft system

The "CD player" -R89- „Clarion MP3“ is equipped with an electronic anti-theft system



### Note

- ◆ Each "CD player" -R89- „Clarion MP3“ has its own code
- ◆ The anti-theft system code is on the "CD player" -R89- „Clarion MP3“ card along with the equipment ID number ⇒ Radio Instruction Manual
- ◆ For safety reasons, the "CD player" -R89- „Clarion MP3“ card should not be kept inside the vehicle. If necessary, request the code from the client.
- ◆ If the "CD player" -R89- „Clarion MP3“ is replaced, activate the anti-theft code and inform the new number to the customer.

The anti-theft system is activated and blocks the radio whenever:

- ◆ the Battery -A- is disconnected.
- ◆ the "CD player" -R89- „Clarion MP3“ is removed from the vehicle.

## 2.2.5 "CD player" -R89- „Clarion MP3“ anti-theft system - activate



### WARNING

If you do not know the anti-theft code, query it in the ELSA system (Specific vehicle information), by using the chassis number of the "CD player" -R89- „Clarion MP3“, located on the upper part of the equipment, along with the vehicle's chassis number.

- Turn on the "CD player" -R89- „Clarion MP3“.

The display will automatically indicate „SAFE“ and, then, „1000“ on its visor. There is no need to push any button.

- By using the station preset keys 1 to 4, insert the "CD player" -R89- „Clarion MP3“ code along with the equipment ID number ⇒ Radio Instruction Manual. Use key 1 to select the first digit of the code, use key 2 to select the second digit and so on.
- Then, press the [seek/track] key (right direction), and keep it pressed until the anti-theft code is deactivated. The equipment becomes operational and is turned on.



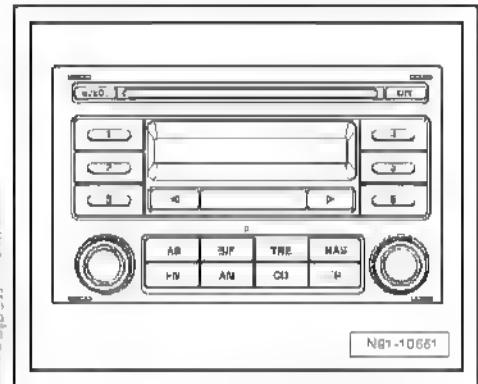
### Note

If an incorrect code number is used when activating the electronic anti-theft system, the „SAFE“ notification will begin flashing on the display, followed by the „1000“ notification. At this time, it is possible to repeat the entire operation. If an incorrect code is entered again, the device will be blocked for approximately one hour, meaning, it will non-operational during that time. A device block is indicated on the left side of the display and permanently shows the „SAFE“ notification and the number „2“ (small). This notification will disappear after one hour, at which point it is possible to input the code again with the key in the ignition and the device connected to the vehicle. The »two-attempt/one-hour block cycle« remains valid.

## 2.3 "CD player" -R89- „RCD 200“ (Europe)

The "CD player" -R89- „RCD 200“ consists of the device [⇒ Item 6 \(page 14\)](#), the Antenna -R11- [⇒ Item 2 \(page 9\)](#), and/or Windscreen antenna -R31- [⇒ Item 1 \(page 3\)](#) with an Antenna amplifier -R24- [⇒ Item 2 \(page 3\)](#), and its respective loudspeakers:

- ◆ one Left front speaker for treble sounds -R20- and one Right front loudspeaker for treble sounds -R22- [⇒ Item 7 \(page 14\)](#), in each lining of column A.
- ◆ one Left front speaker for bass sounds -R21- and one Right front speaker for bass sounds -R23- [⇒ Item 5 \(page 14\)](#), in each lining of the front doors.
- ◆ a Left rear bass speaker -R15- and a Right rear bass speaker -R17- [⇒ Item 4 \(page 14\)](#) in each lining of the rear doors.



### 2.3.1 "CD player" -R89- „RCD 200“ - assembly overview



1 - Windscreen antenna -R31-

- Additional Information  
⇒ [page 38](#).

2 - Antenna amplifier -R24-

- Additional Information  
⇒ [page 38](#).
- Remove and install  
⇒ [page 38](#).

3 - Antenna -R11-

- Additional Information  
⇒ [page 39](#).

4 - Left rear bass speaker -  
R15- and/or Right rear bass  
speaker -R17-

- Installed in the rear side  
or rear door linings.
- Remove and install  
⇒ [page 34](#).

5 - Left front bass speaker  
R21- and/or Right front bass  
speaker -R23-

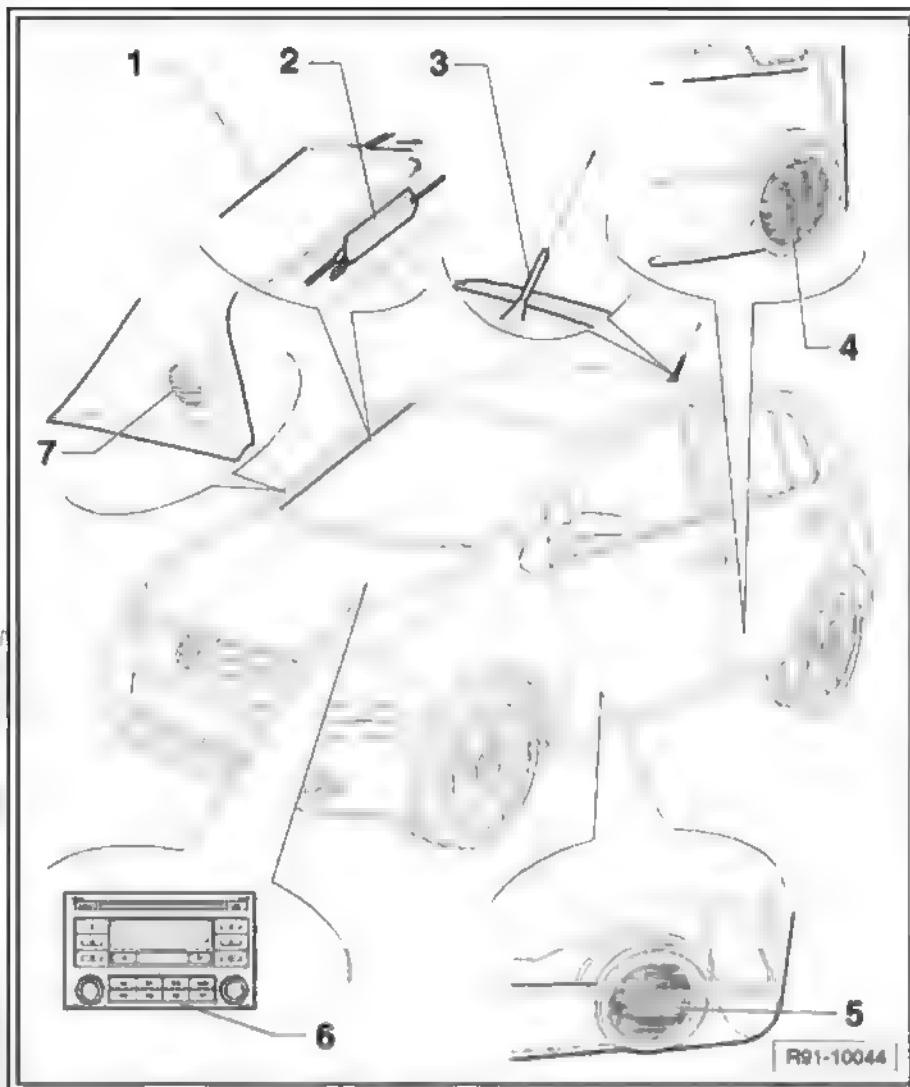
- Installed in the linings of  
the front doors.
- Remove and install  
⇒ [page 34](#).

6 - "CD player" -R89- „RCD  
200“

- Remove and install  
⇒ [page 14](#).
- Connector pinout  
⇒ [page 16](#).
- Additional anti-theft sys-  
tem information  
⇒ [page 18](#).

7 - Left front treble speaker -R20- and/or Right front treble speaker -R22-

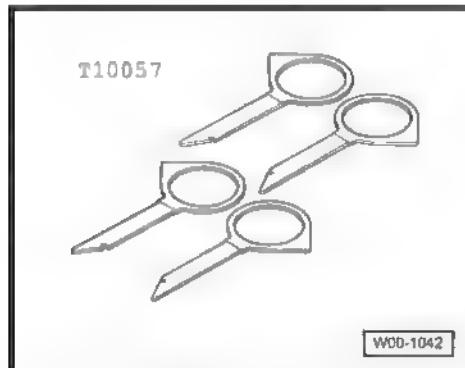
- Installed in the lining of column A.
- Remove and install ⇒ [page 34](#).



### 2.3.2 "CD player" -R89- „RCD 200“ (Europe) - remove and install

Special tools and workshop equipment required

- ◆ Key -T 10057-



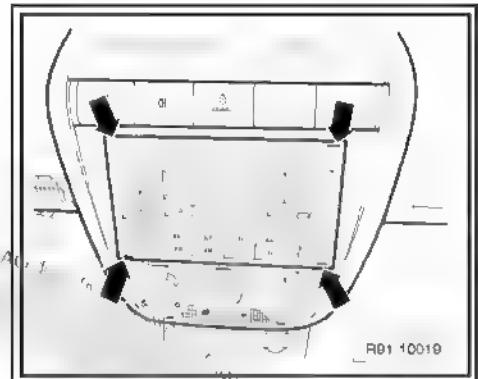


### Removal:

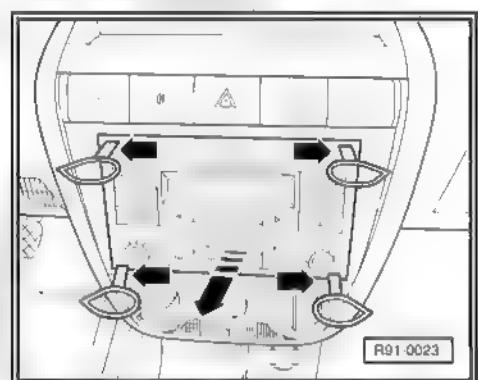
- Turn off the ignition, all the electrical devices, and remove the key from ignition.
- Remove the CD, if any, from the device ⇒ Radio Instruction Manual
- Insert the Key -T 10057- into the front notches -arrows- of the device, as indicated next

Top L - above and below, left side

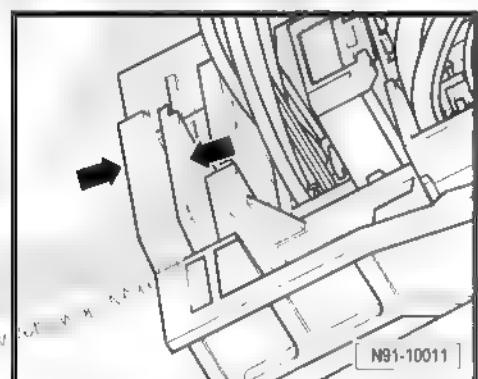
Top R - above and below, right side



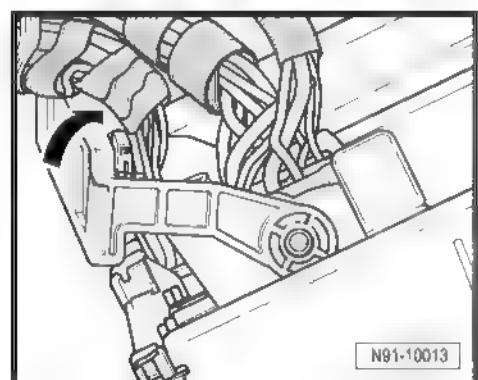
- Remove the "CD player" -R89- „RCD 200“ from the panel, pulling it out with the Key -T 10057- in the direction of the -arrows-.
- Pull the CD player -R89- „RCD 200“ from its housing until the rear connectors are accessible.



- Push the connector lock in the direction of the -arrows-.

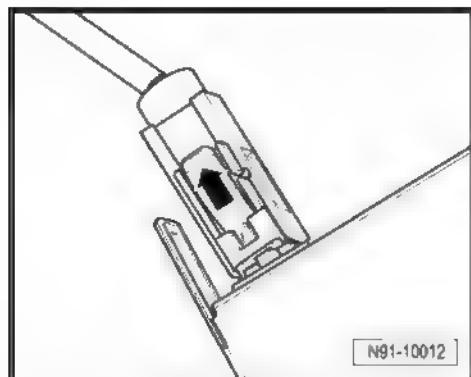


- Move the fastening bow upwards, in the direction of the -arrow-, and turn off the connector.





- Unlock and pull the aerial connector in the direction of the -arrow-



- After removing the "CD player" -R89- „RCD 200", remove each Key -T 10057- by pressing the lock -arrow -.

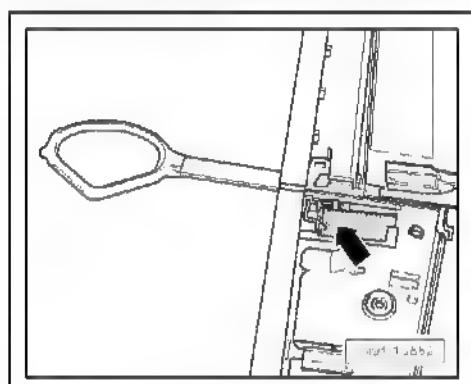
**Installation:**

- Connect the "CD player" -R89- „RCD 200" connectors and cable for the Antenna -R11- .
- Install the "CD player" -R89- „RCD 200" "by fitting it completely into the housing in the panel.



**WARNING**

*Never press the command keys or the display during installation, otherwise the device may be damaged.*



- Activate the electronic anti-theft alarm system, if necessary  
[= page 19](#).
- Check coding of the "CD player" -R89- „MP3" and, if necessary, adapt.

### 2.3.3 "CD player" -R89- „RCD 200“ - connector pinout (Europe)



1 - Multiple connector 1, 8-pin connector -T8-, loud-speaker outputs

- Connector pinout  
[page 17](#)

2 - Multiple connector 2, 8-pin connector -T8-, current feed, CAN-Bus, telephone noise insulation

- Connector pinout  
[page 18](#)

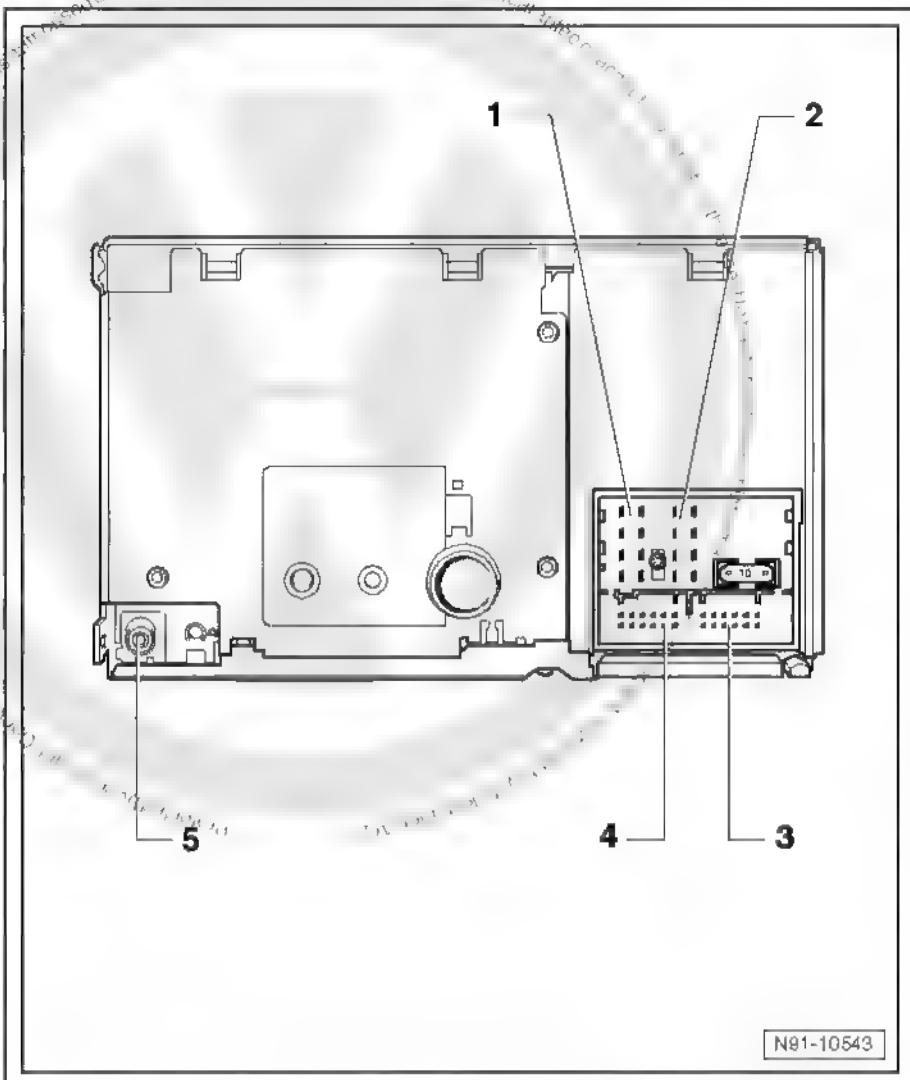
3 - Multiple connector 3, 12-pin connector -T12-, telephone signal input

- Connector pinout  
[page 18](#)

4 - Multiple connector 4, 12-pin connector -T12-, CD charger command and audio/CD input signals

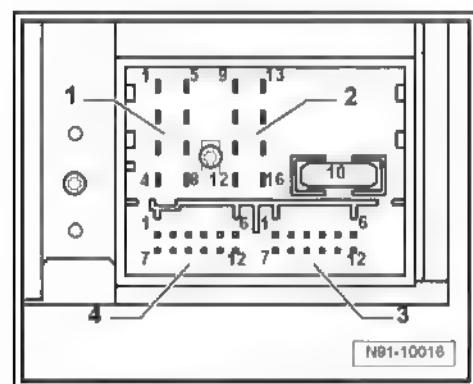
- Connector pinout  
[page 18](#)

5 - Connector 5, antenna



Multiple connector 1, 8-pin connector -T8-, loud-speaker outputs

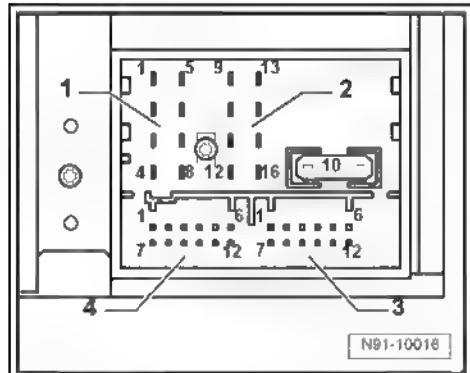
- 1 - Rear speaker, right side, positive
- 2 - Front speaker, right side, positive
- 3 - Front speaker, left side, positive
- 4 - Rear speaker, left side, positive
- 5 - Rear speaker, right side, negative
- 6 - Front speaker, right side, negative
- 7 - Front speaker, left side, negative
- 8 - Rear speaker, left side, negative





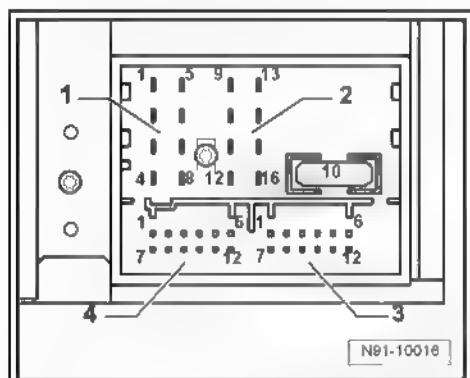
Multiple connector 2, 8-pin connector -T8-, current feed, CAN-Bus, telephone noise insulation

- 9 - CAN-Bus High
- 10 - CAN-Bus Low
- 12 - Connection to negative, terminal 31
- 15 - Connection to positive, terminal 30
- 16 - Connection to positive, terminal 30



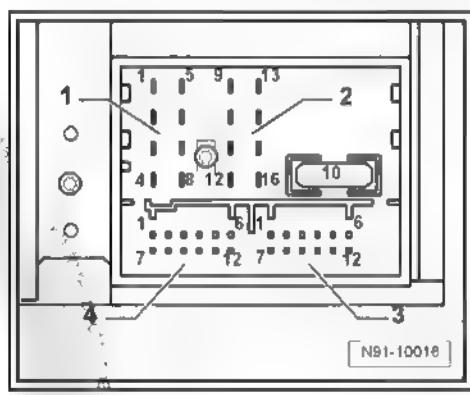
Multiple connector 3, 12-pin connector -T12-, telephone signal input

- 6 - Telephone audio, negative
- 12 - Telephone audio, positive



Multiple connector 4, 12-pin connector -T12-, CD charger command and audio/CD input signals

- 1 - Headset signal output, right side, positive
- 2 - CD charger, channels, left and right sides, negative
- 3 - Headset output signal, audio mass
- 4 - CD charger, current feed, positive
- 5 - Headset signal output, left side, positive
- 6 - CD charger, DATA OUT (data exchange for activation of the CD charger from the Radio System to the CD charger)
- 8 - CD charger, audio output, channel, left side, positive
- 9 - CD charger, audio output, channel, right side, positive
- 10 - CD charger, command signal
- 11 - CD charger, DATA IN (data exchange for activation of the CD charger, CD charger to the Radio System)
- 12 - CD charger, CLOCK (internal verification protocol to control data flow)



### 2.3.4 "CD player" -R89- „RCD 200“ (Europe) anti-theft system

The "CD player" -R89- „RCD 200“ is equipped with an electronic anti-theft system.

After the electronic anti-theft system is activated for the first time, an internal code is saved in the "CD player" -R89- „RCD 200“ and in the Combined instrument -K- of the vehicle. If during repair work the "CD player" -R89- „RCD 200“ should experience a power outage (for example when removing the "CD player" -R89- „RCD 200“ or the Battery -A-), a data exchange occurs between the "CD player" -R89- „RCD 200“ and the Combined instrument -K- after the voltage supply is restored



In this manner, a comparison is made between the internal code of the "CD player" -R89- „RCD 200“ and the Combined instrument -K-. If the code is identical, the Combined instrument -K- recognizes that the "CD player" -R89- „RCD 200“ installed belongs to the vehicle, and the radio becomes operational without the need for entering the anti-theft code.



#### Note

- ◆ Each "CD player" -R89- „RCD 200“ has its own code.
- ◆ The anti-theft system code is glued to the "CD player" -R89- „RCD 200“ card along with the equipment ID number ⇒ Radio Instruction Manual.
- ◆ For safety reasons, the "CD player" -R89- „RCD 200“ card should not be kept inside the vehicle. If necessary, request the code from the client.
- ◆ If a "CD player" -R89- „RCD 200“ is replaced, the replacement equipment code must be used. The customer must be informed that the code number was changed.

The electronic anti-theft system starts operating and blocks the radio whenever:

- ◆ the Battery -A- is disconnected.
- ◆ the "CD player" -R89- „RCD 200“ is removed from the vehicle.
- ◆ the Combined instrument -K- is replaced.

### 2.3.5 "CD player" -R89- „RCD 200“ (Europe) anti-theft system - activate



#### WARNING

If the anti-theft code is not known, it may be queried through the ELSA system (Specific vehicle information), or through the Diagnosis, Measurement and Information System -VAS 5051A /52-, by using the chassis number of the "CD player" -R89- „RCD 200“, located on the equipment, together with the vehicle's chassis number.

- Turn on the "CD player" -R89- „RCD 200“.

The display will automatically indicate „SAFE“ and, then, „1000“ on its visor. There is no need to push any button.

- Using the radio station memorization buttons 1 to 4, enter the code of the "CD player" -R89- „RCD 200“. With key 1, select the first code digit, with key 2, the second digit, and so forth.
- Then, press the rotary/pressure button on the right side, keeping it pressed until the anti-theft coding is activated. The equipment becomes operational and is turned on.

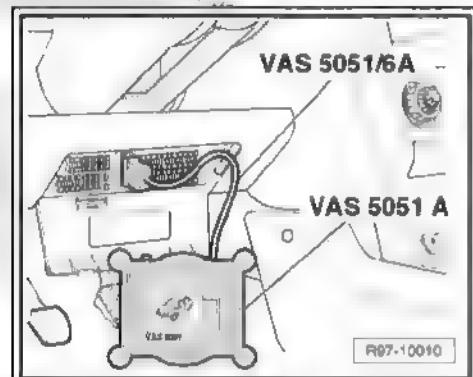


### Note

If an incorrect code number is used when activating the electronic anti-theft system, the „SAFE“ notification will begin flashing on the display, followed by the „1000“ notification. At this time, it is possible to repeat the entire operation. If an incorrect code is entered again, the device will be blocked for approximately one hour, meaning, it will non-operational during that time. The blocking is signed on the left side of the display through the indication „SAFE“ (permanent) and a „2“ (small). This notification will disappear after one hour, at which point it is possible to input the code again with the key in the ignition and the device connected to the vehicle. The »two-attempt/one-hour block cycle« remains valid.

## 2.3.6 "CD player" -R89- „RCD 200“ (Europe) - adapt

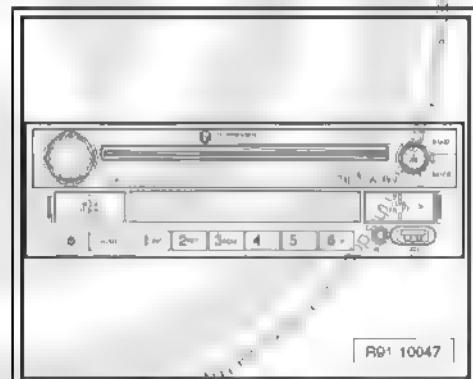
- Connect the Diagnosis, Measurement and Information System -VAS 5051A/52- to the 16-pin diagnosis connector -T16-  
⇒ General information; Rep. gr. 97 ; Cables and wiring harnesses .
- Turn on the ignition.
- Turn off all electrical devices.
- Proceed by selecting the desired functions ⇒ Vehicle diagnostic tester.



## 2.4 "CD player" -R89- „1 Din Clarion with USB“ - 09/07

The "CD player" -R89- „1 Din Clarion with USB“ consists of the device itself ⇒ [Item 5 \(page 21\)](#) , the Antenna -R11- ⇒ [Item 2 \(page 21\)](#) , and its respective speakers:

- ◆ one Left front speaker for treble sounds -R20- and one Right front loudspeaker for treble sounds -R22-  
⇒ [Item 1 \(page 21\)](#) , in each lining of column A.
- ◆ one Left front speaker for bass sounds -R21- and one Right front speaker for bass sounds -R23- ⇒ [Item 4 \(page 21\)](#) , in each lining of the front doors.
- ◆ a Left rear bass speaker -R15- and a Right rear bass speaker -R17- ⇒ [Item 3 \(page 21\)](#) in each lining of the rear doors.



## 2.4.1 "CD player" -R89- „1 Din Clarion with USB“ - general overview of assembly



1 - Left front treble speaker -  
R20- and/or Right front treble  
speaker -R22-

- Installed in the lining of  
column A.
- Remove and install  
⇒ [page 34](#).

2 - Antenna -R11-

- Additional information  
(► 12/07) ⇒ [page 39](#)
- Additional information  
(01/08►) ⇒ [page 40](#)

3 - Left rear bass speaker -  
R15- and/or Right rear bass  
speaker -R17-

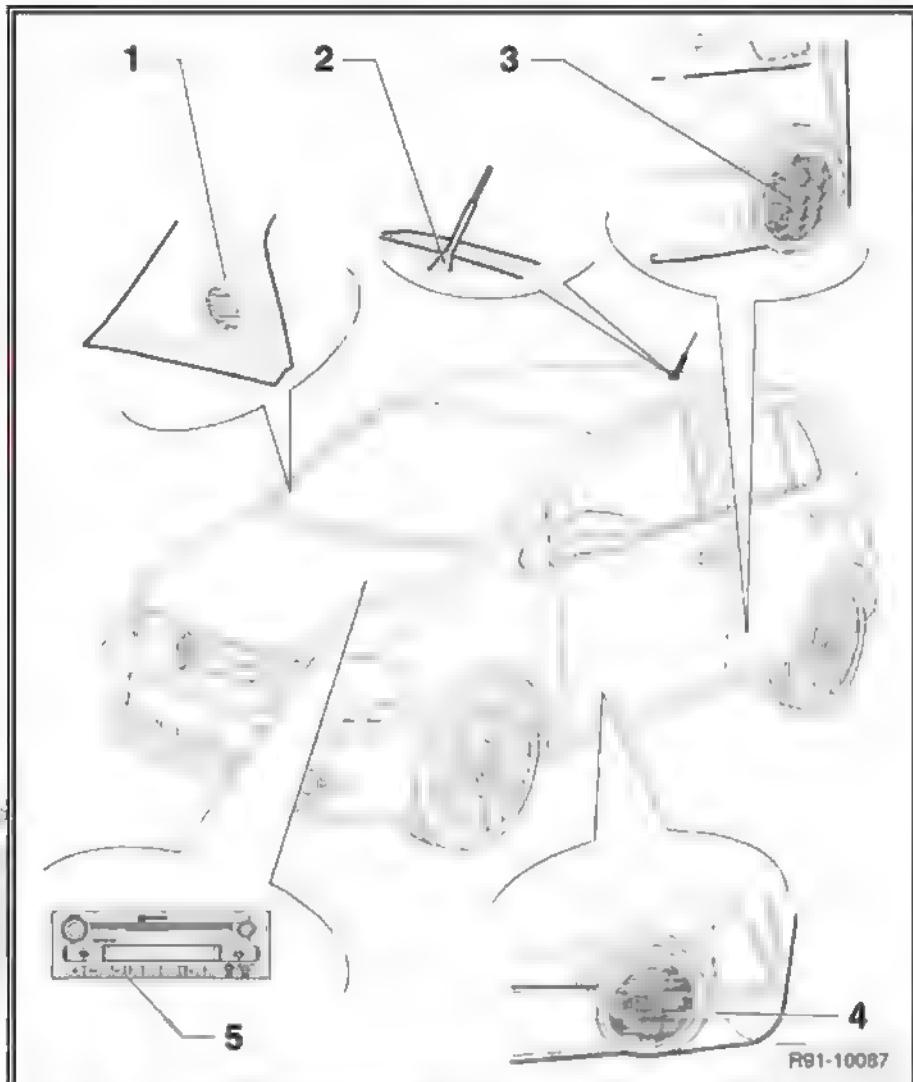
- Installed in the rear side  
or rear door linings.
- Remove and install  
⇒ [page 34](#).

4 - Left front bass speaker -  
R21- and/or Right front bass  
speaker -R23-

- Installed in the linings of  
the front doors.
- Remove and install  
⇒ [page 34](#).

5 - "CD player" -R89- „1 Din  
Clarion with USB“

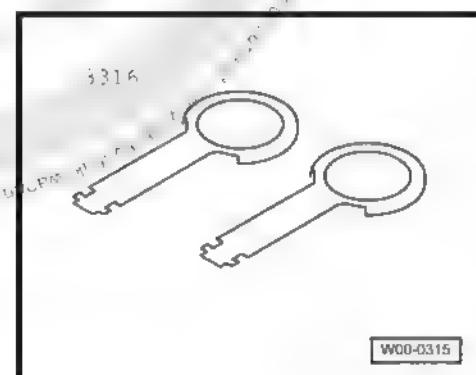
- Remove and install  
⇒ [page 21](#).
- Connector pinout  
⇒ [page 23](#).
- Additional anti-theft sys-  
tem information  
⇒ [page 23](#).



#### 2.4.2 "CD player" -R89- „1 Din Clarion with USB“ - remove and install

Special tools and workshop equipment required

- ◆ Puller -3316-

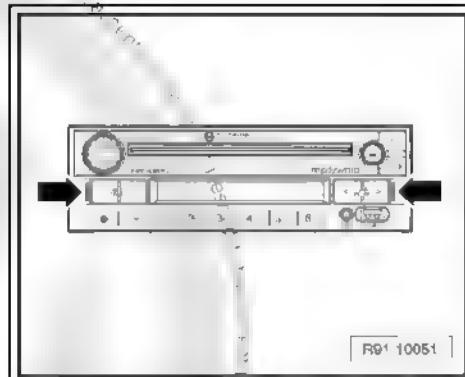


**Removal:**

- Turn off the ignition, all the electrical devices, and remove the key from ignition.

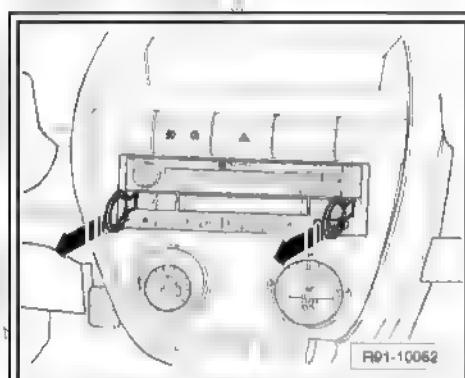


- Remove the CD, if any, from the equipment [Radio Instruction Manual](#).
- , according to the following indication
- Insert the Puller -3316- into the front notches -arrows- of the device, as indicated next:



[R91-10051]

- Remove the CD player -R89- „1 Din Clarion with USB“ from the panel, using the Puller -3316- to pull it in the direction of the -arrows-.
- Pull the CD player -R89- „1 Din Clarion with USB“ from its housing until the rear connectors are accessible.
- Disconnect the connectors of the "CD player" -R89- „1 Din Clarion with USB“ and cable for the Antenna -R11-.



[R91-10062]

- After removing the equipment, remove each Puller -3316- by pressing the lock -arrow -.

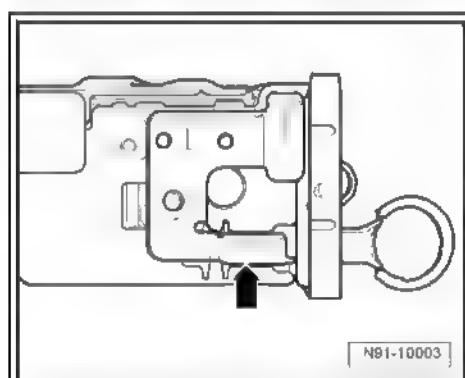
#### Installation:

- Connect the connectors for the "CD player" -R89- „1 Din Clarion with USB“ and the Antenna -R11- .
- Install the "CD player" -R89- „1 Din Clarion with USB“ , by pushing it completely into the housing in the panel.



#### WARNING

*During installation, never press the display nor the command keys; otherwise, the equipment may be damaged.*



[R91-10003]

- Activate the electronic anti-theft alarm system, if necessary [page 24](#) .



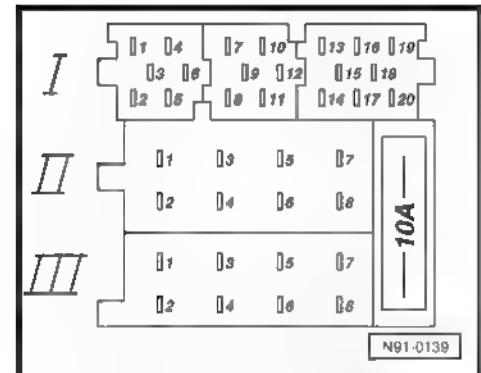
### 2.4.3 "CD player" -R89- „1 Din Clarion with USB“ - connector pinout

Multiple connector I, 20-pin connector -T20-

7 - Telephone, positive (+)

11 - Remote control, REM

12 - Telephone, negative (-)



Multiple connector II, 8-pin connector -T8-

1 - Rear speaker, right side, positive

2 - Rear speaker, right side, negative

3 - Front speaker, right side, positive

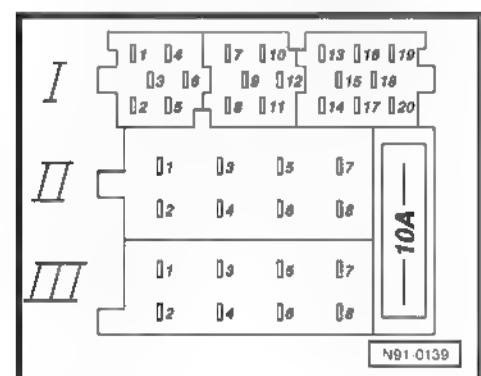
4 - Front speaker, right side, negative

5 - Front speaker, left side, positive

6 - Front speaker, left side, negative

7 - Rear speaker, left side, positive

8 - Rear speaker, left side, negative



Multiple connector III, 8-pin connector -T8- :

1 - Alarm SW

2 - Mute

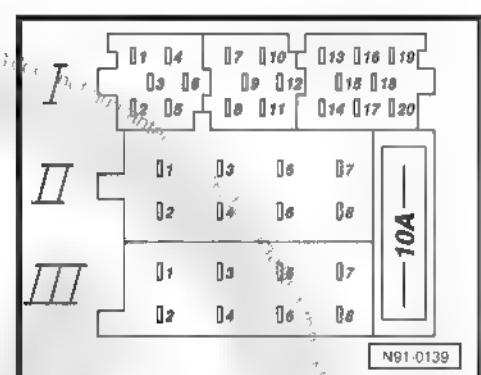
4 - Connection for on/off operations controlled by the ignition key (contact S)

5 - Battery (SAFE)

6 - Lighting (terminal 58b)

7 - Battery, positive (terminal 30)

8 - Battery, negative (terminal 31)



### 2.4.4 "CD player" -R89- „1 Din Clarion with USB“ - anti-theft system

The "CD player" -R89- „1 Din Clarion with USB“ is equipped with an anti-theft system.



### Note

- ◆ Each "CD player" -R89- „1 Din Clarion with USB" has its own code.
- ◆ The anti-theft system code is on the "CD player" -R89- „1 Din Clarion with USB" card along with the equipment ID number  
⇒ Radio Instruction Manual
- ◆ For safety reasons, the "CD player" -R89- „1 Din Clarion with USB" card should not be kept inside the vehicle. If necessary, request the code from the client.
- ◆ If the "CD player" -R89- „1 Din Clarion with USB" is replaced, activate the anti-theft code and inform the new number to the customer.

The anti-theft system is activated and blocks the radio whenever:

- ◆ the Battery -A- is disconnected.
- ◆ the "CD player" -R89- „1 Din Clarion with USB" is removed from the vehicle.

## 2.4.5 "CD player" -R89- „1 Din Clarion with USB" - anti-theft system - activate



### WARNING

If you do not know the anti-theft code, query it in the ELSA system (Specific vehicle information), by using the chassis number of the "CD player" -R89- „1 Din Clarion with USB", located on the upper part of the equipment, along with the vehicle's chassis number.

- Turn on the "CD player" -R89- „1 Din Clarion with USB"
- The display will automatically indicate „SAFE" and, then, „1000" on its visor. There is no need to push any button.
- By using the station preset keys 1 to 4, insert the "CD player" -R89- „1 Din Clarion with USB" code along with the equipment ID number ⇒ Radio Instruction Manual. Use key 1 to select the first digit of the code, use key 2 to select the second digit and so on.
  - Then, press the **seek/track** key (right direction), and keep it pressed until the anti-theft code is deactivated. The equipment becomes operational and is turned on.



### Note

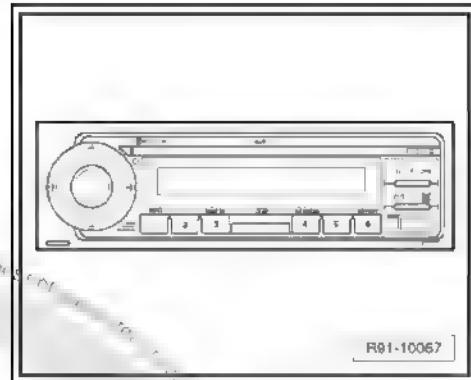
If an incorrect code number is used when activating the electronic anti-theft system, the „SAFE" notification will begin flashing on the display, followed by the „1000" notification. At this time, it is possible to repeat the entire operation. If an incorrect code is entered again, the device will be blocked for approximately one hour, meaning, it will non-operational during that time. A device block is indicated on the left side of the display and permanently shows the „SAFE" notification and the number „2" (small). This notification will disappear after one hour, at which point it is possible to input the code again with the key in the ignition and the device connected to the vehicle. The »two-attempt/one-hour block cycle« remains valid.



## 2.5 "CD player" -R89- „1 Din MID“ - 01/08 ▶

The "CD player" -R89- „1 Din MID“ consists of the device itself  
⇒ [Item 5 \(page 25\)](#), the Antenna -R11- ⇒ [Item 2 \(page 25\)](#),  
and its respective speakers:

- ◆ one Left front speaker for treble sounds -R20- and one Right front loudspeaker for treble sounds -R22-  
⇒ [Item 1 \(page 25\)](#), in each lining of column A.
- ◆ one Left front speaker for bass sounds -R21- and one Right front speaker for bass sounds -R23- ⇒ [Item 4 \(page 25\)](#), in each lining of the front doors.
- ◆ a Left rear bass speaker -R15- and a Right rear bass speaker -R17- ⇒ [Item 3 \(page 25\)](#), in each lining of the rear doors.



### 2.5.1 "CD player" -R89- „1 Din MID“ - assembly overview

1 - Left front treble speaker - R20- and/or Right front treble speaker -R22-

- Installed in the lining of column A.
- Remove and install ⇒ [page 34](#).

2 - Antenna -R11-

- Remove and install ⇒ [page 40](#).

3 - Left rear bass speaker - R15- and/or Right rear bass speaker -R17-

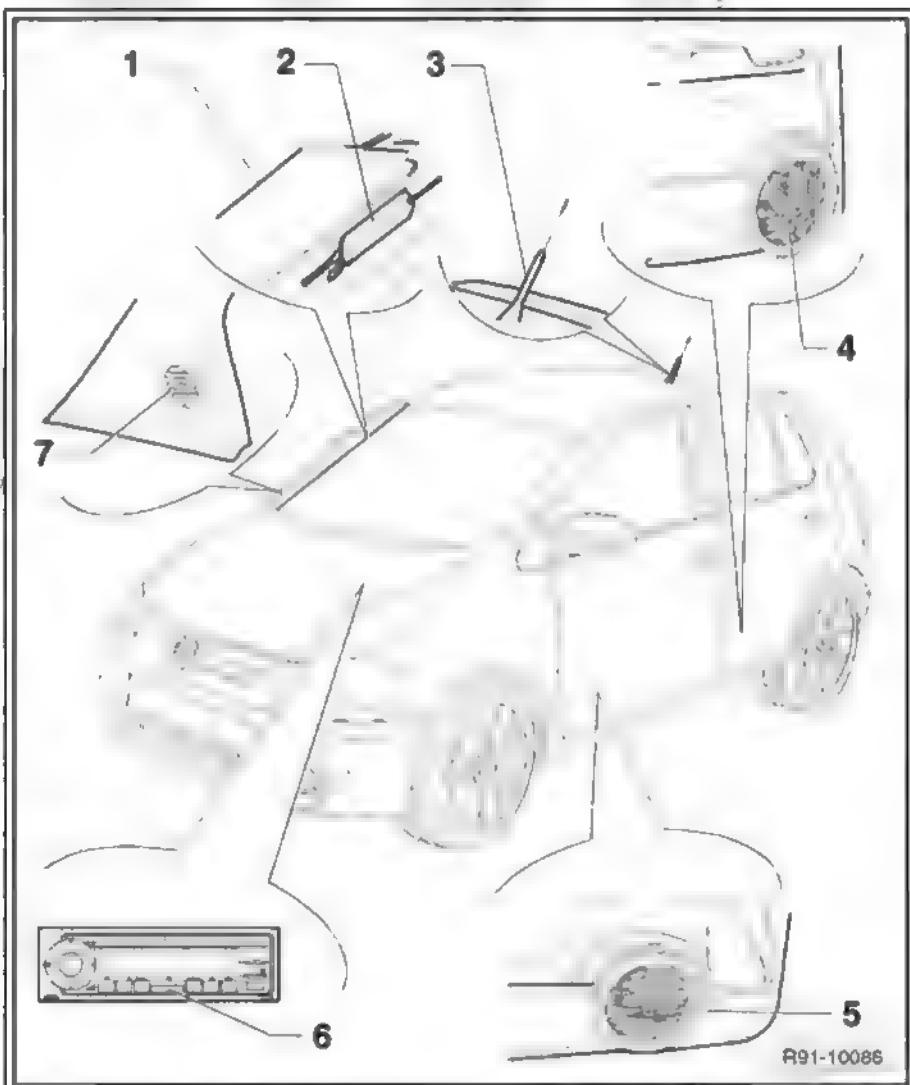
- Installed in the rear side or rear door linings
- Remove and install ⇒ [page 34](#).

4 - Left front bass speaker - R21- and/or Right front bass speaker -R23-

- Installed in the linings of the front doors
- Remove and install ⇒ [page 34](#).

5 - CD player -R89- „1 Din MID“

- Remove and install ⇒ [page 25](#).
- Connector pinout ⇒ [page 27](#).
- Additional anti-theft system information ⇒ [page 28](#).

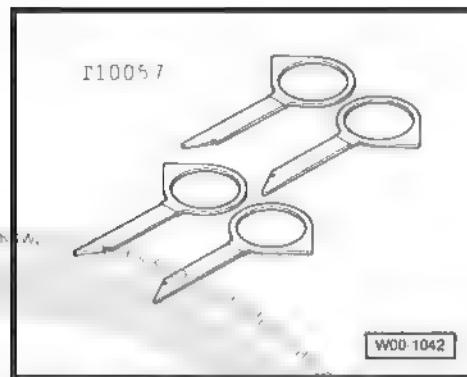


### 2.5.2 CD player -R89- „1 Din MID“ - remove and install

Special tools and workshop equipment required

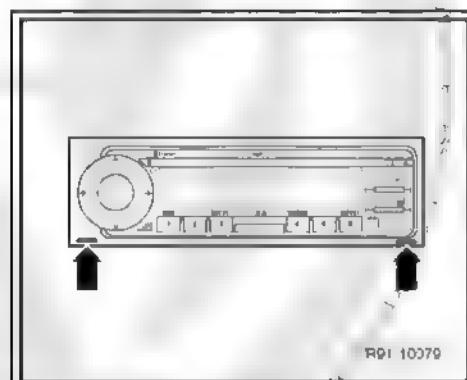


◆ Key -T 10057-

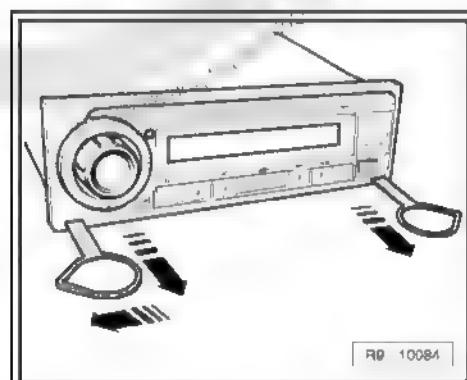


**Removal:**

- Turn off the ignition and all electrical devices, then remove the ignition key.
- If the vehicle is equipped with a CD player, remove any CD from the device ⇒ Radio instruction manual.
- Insert the Key -T 10057- into the front notches -arrows- of the device, as indicated next:



- Remove the CD player -R89- „1 Din MID“ from the panel, using the Key -T 10057- to pull it in the direction of the -arrows-.
- Pull the CD player -R89- „1 Din MID“ from its housing until the rear connectors are accessible.
- Disconnect the CD player -R89- „1 Din MID“ connectors and the Antenna -R11- cable.





- After removing the CD player -R89- "1 Din MID", remove each Key -T 10057- by pressing the lock -arrow-.

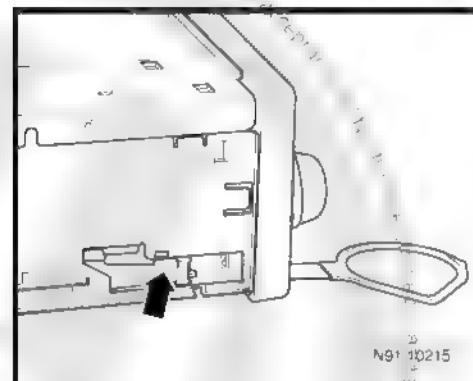
Installation:

- Connect the CD player -R89- "1 Din MID" connectors and the Antenna -R11- cable.
- Install the CD player -R89- "1 Din MID", inserting it into the panel housing until it fully attaches.



#### WARNING

*Never press the command keys or the display during installation, otherwise the device may be damaged.*

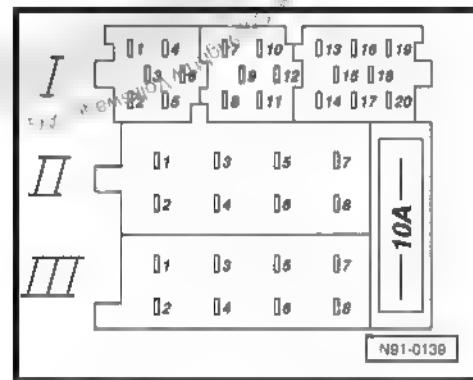


- Activate the electronic anti-theft alarm system, if necessary  
⇒ [page 28](#).

### 2.5.3 CD player -R89- "1 Din MID" - connector pinout

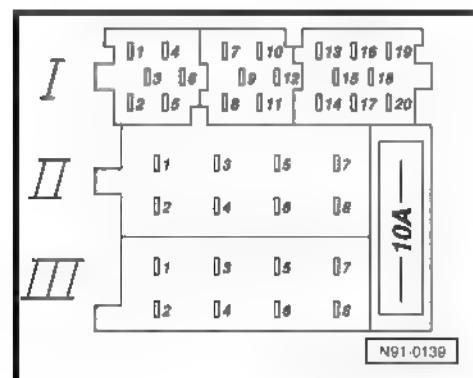
Multiple connector I, 20-pin connector -T20-

- 7 - Telephone, positive (+)
- 8 - Clock (Display)
- 9 - Date (Display)
- 10 - Display
- 11 - Steering Wheel Control
- 12 - Telephone, negative (-)
- 16 - Amplifier (1A)
- 17 - Amplifier (100mA)
- 18 - Ground (auxiliary)
- 19 - Left (auxiliary)
- 20 - Right (auxiliary)



Multiple connector II, 8-pin connector -T8-

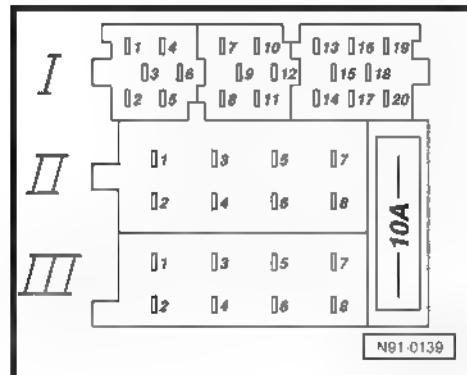
- 1 - Rear speaker, right side, positive
- 2 - Rear speaker, right side, negative
- 3 - Front speaker, right side, positive
- 4 - Front speaker, right side, negative
- 5 - Front speaker, left side, positive
- 6 - Front speaker, left side, negative
- 7 - Rear speaker, left side, positive
- 8 - Rear speaker, left side, negative





#### Multiple connector III, 8-pin connector -T8-

- 1 - Gala
- 2 - Mute
- 3 - Self-diagnosis/cable K
- 4 - Connection for on/off operations controlled by the ignition key (contact S)
- 5 - Battery (SAFE)
- 6 - Lighting (terminal 58b)
- 7 - Battery, positive (terminal 30)
- 8 - Battery, negative (terminal 31)



#### 2.5.4 CD player -R89- „1 Din MID“ - anti-theft system

The CD player -R89- „1 Din MID“ is equipped with an anti-theft system.



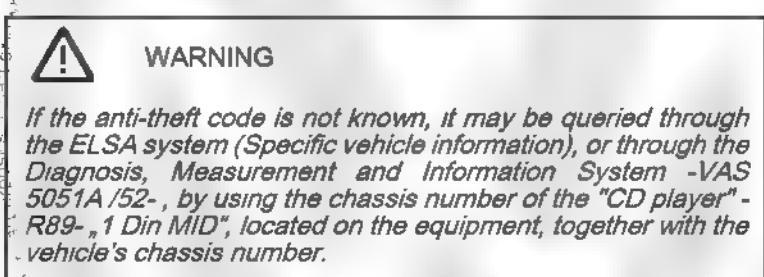
##### Note

- ◆ Each CD player -R89- „1 Din MID“ has its own code.
- ◆ The code for the anti-theft system is located on the CD player -R89- „1 Din MID“ card, along with the identification number of the device => Radio instruction manual.
- ◆ For security reasons, the CD player -R89- „1 Din MID“ card must not be kept inside the vehicle. If necessary, request the code from the client.
- ◆ If the CD player -R89- „1 Din MID“ is replaced, the client must be provided with a new anti-theft code.

The anti-theft system is activated and blocks the radio whenever:

- ◆ the Battery -A- is disconnected.
- ◆ the CD player -R89- „1 Din MID“ is removed from the vehicle.

#### 2.5.5 "CD player" -R89- „1 Din MID“ anti-theft system - activate



- Turn on the CD player -R89- „1 Din MID“

The digital display will automatically show „SAFE“ and then „1000“

- Use station memory keys 1 to 4 to input the CD player -R89- „1 Din MID“ code and the identification number for the device => Radio instruction manual. Use key 1 to select the first digit of the code, use key 2 to select the second digit and so on



- Then, press the **►**key (toward the right), and keep it pressed until an acoustic warning is heard. The anti-theft codification will be deactivated and the device is turned on.



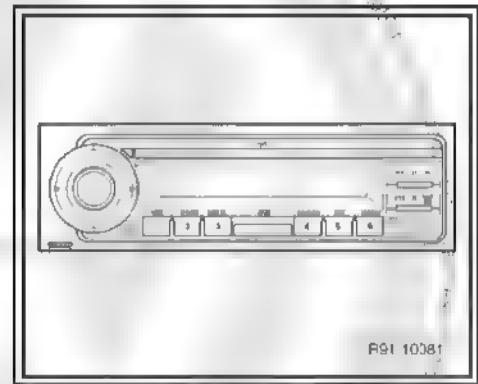
#### Note

*If an incorrect code number is used when activating the electronic anti-theft system, the „SAFE“ notification will begin flashing on the display, followed by the „1000“ notification. At this time, it is possible to repeat the entire operation. If an incorrect code is entered again, the device will be blocked for approximately one hour, meaning, it will non-operational during that time. A device block is indicated on the left side of the display and permanently shows the „SAFE“ notification and the number „2“ (small). This notification will disappear after one hour, at which point it is possible to input the code again with the key in the ignition and the device connected to the vehicle. The »two-attempt/one-hour block cycle« remains valid.*

## 2.6 "CD player" -R89- „Concept“ - 03/08 ➤

The "CD player" -R89- „Concept“ consists of the device itself [⇒ Item 5 \(page 30\)](#), the Antenna -R11- [⇒ Item 2 \(page 30\)](#), and its respective speakers:

- one Left front speaker for treble sounds -R20- and one Right front loudspeaker for treble sounds -R22- [⇒ Item 1 \(page 30\)](#), in each lining of column A.
- one Left front speaker for bass sounds -R21- and one Right front speaker for bass sounds -R23- [⇒ Item 4 \(page 30\)](#), in each lining of the front doors.
- a Left rear bass speaker -R15- and a Right rear bass speaker -R17- [⇒ Item 3 \(page 30\)](#) in each lining of the rear doors.



### 2.6.1 "CD player" -R89- „Concept“ - assembly overview



1 - Left front treble speaker -  
R20- and/or Right front treble  
speaker -R22-

- Installed in the lining of  
column A.
- Remove and install  
⇒ [page 34](#).

2 - Antenna -R11-

- Remove and install  
⇒ [page 40](#).

3 - Left rear bass speaker -  
R15- and/or Right rear bass  
speaker -R17-

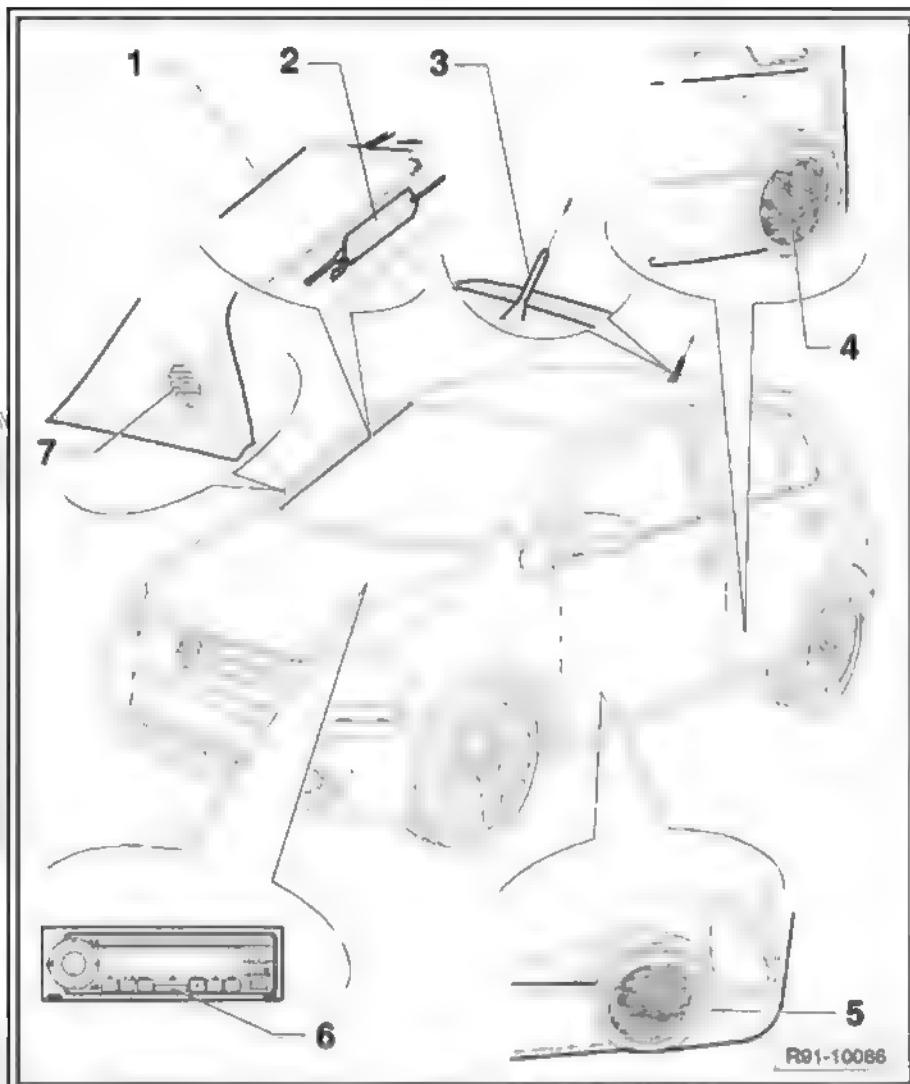
- Installed in the rear side  
or rear door linings.
- Remove and install  
⇒ [page 34](#).

4 - Left front bass speaker -  
R21- and/or Right front bass  
speaker -R23-

- Installed in the linings of  
the front doors.
- Remove and install  
⇒ [page 34](#).

5 - "CD player" -R89- „Concept“

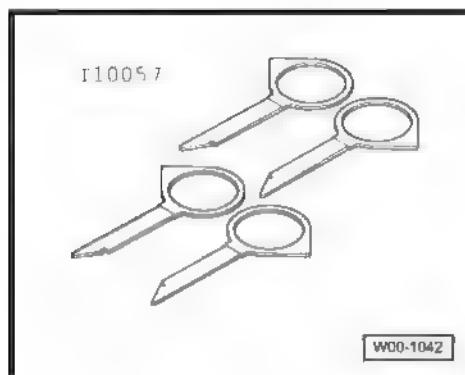
- Remove and install  
⇒ [page 30](#).
- Connector pinout  
⇒ [page 32](#).
- Additional anti-theft sys-  
tem information  
⇒ [page 32](#).



## 2.6.2 "CD player" -R89- „Concept“ - remove and install

Special tools and workshop equipment required

- ◆ Key -T 10057-

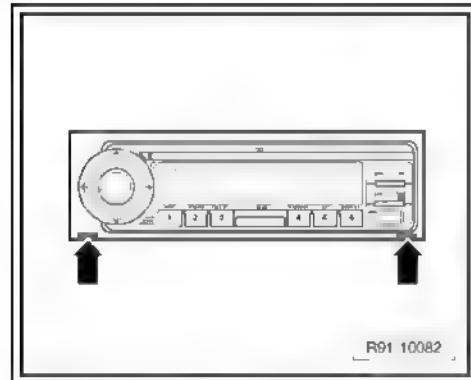


### Removal:

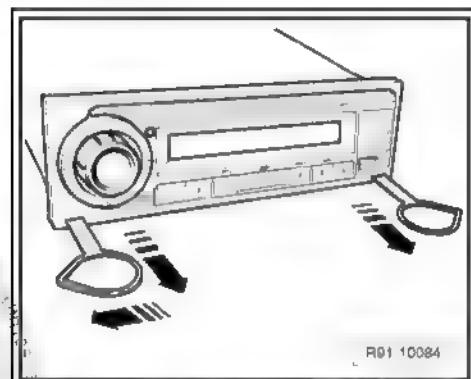
- Turn off the ignition and all electrical devices, then remove the ignition key.



- Insert the Key -T 10057- into the front notches -arrows- of the device, as indicated next:



- Remove the "CD player" -R89- „Concept“ from the dash by pulling it with the Screwdriver -T 10057- in the direction of the -arrows-.
- Pull the device out of its housing until the rear connectors are accessible.
- Disconnect the "CD player" -R89- „Concept“ connectors and cable for the Antenna -R11-.



- After removing the "CD player" -R89- „Concept“, remove each Key -T 10057- by pressing the lock -arrow -.

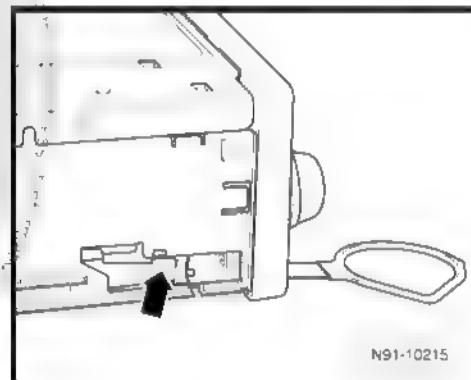
#### Installation:

- Connect the "CD player" -R89- „Concept“ connectors and cable for the Antenna -R11- .
- Install the "CD player" -R89- „Concept“, by fitting it completely into the housing in the panel.



#### WARNING

*Never press the command keys or the display during installation, otherwise the device may be damaged.*



- Activate the electronic anti-theft alarm system, if necessary  
⇒ [page 33](#) .



### 2.6.3 "CD player" -R89- „Concept“ - connector pinout

Multiple connector I, 20-pin connector -T20-

7 - Telephone, positive (+)

8 - Clock (Display)

9 - Date (Display)

10 - Display

11 - Steering Wheel Control

12 - Telephone, negative (-)

16 - Amplifier (1A)

17 - Amplifier (100mA)

18 - Ground (auxiliary)

19 - Left (auxiliary)

20 - Right (auxiliary)

Multiple connector II, 8-pin connector -T8-

1 - Rear speaker, right side, positive

2 - Rear speaker, right side, negative

3 - Front speaker, right side, positive

4 - Front speaker, right side, negative

5 - Front speaker, left side, positive

6 - Front speaker, left side, negative

7 - Rear speaker, left side, positive

8 - Rear speaker, left side, negative

Multiple connector III, 8-pin connector -T8-

1 - Gala

2 - Mute

3 - Self-diagnosis/cable K

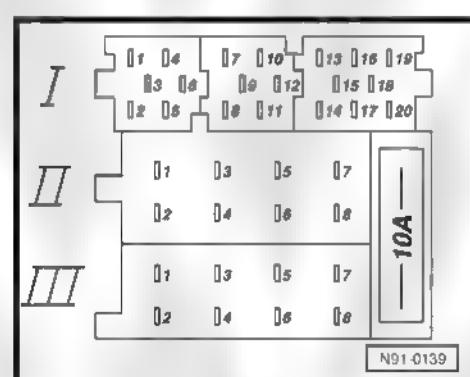
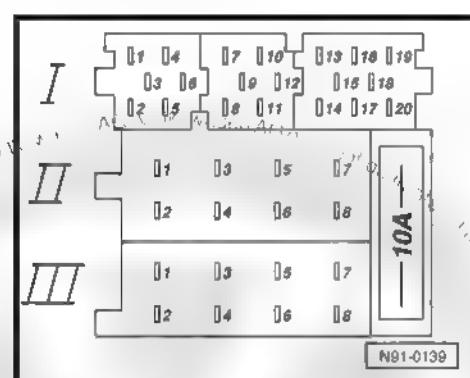
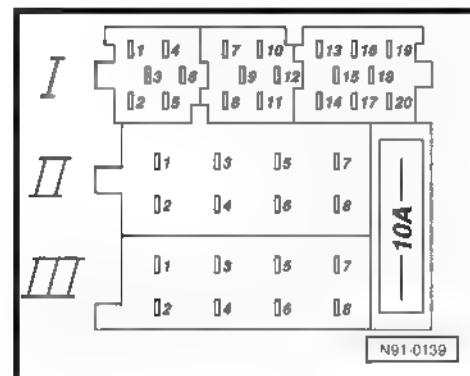
4 - Connection for on/off operations controlled by the ignition key (contact S)

5 - Battery (SAFE)

6 - Lighting (terminal 58b)

7 - Battery, positive (terminal 30)

8 - Battery, negative (terminal 31)



### 2.6.4 "CD player" -R89- „Concept“ - anti-theft system

The "CD player" -R89- „Concept“ is equipped with an anti-theft system.



Note

- ◆ Each "CD player" -R89- „Concept“ has its own code.
- ◆ The anti-theft system code is on the "CD player" -R89- „Concept“ card along with the equipment ID number ⇒ Radio Instruction Manual .
- ◆ For safety reasons, the "CD player" -R89- „Concept“ card should not be kept inside the vehicle. If necessary, request the code from the client.
- ◆ If the "CD player" -R89- „Concept“ is replaced, activate the anti-theft code and communicate the new number to the customer.

The anti-theft system is activated and blocks the radio whenever:

- ◆ the Battery -A- is disconnected.
- ◆ the "CD player" -R89- „Concept“ is removed from the vehicle.

## 2.6.5 "CD player" -R89- „Concept“ anti-theft system - activate



### WARNING

If the anti-theft code is not known, it may be queried through the ELSA system (Specific vehicle information), or through the Diagnosis, Measurement and Information System -VAS 5051A /52-, by using the chassis number of the "CD player" -R89- „Concept“, located on the equipment, together with the vehicle's chassis number.

Turn on the "CD player" -R89- „Concept“.

The digital display will automatically show „SAFE“ and then „1000“.

- By using the station preset keys 1 to 4, insert the "CD player" -R89- „Concept“ code along with the equipment ID number ⇒ Radio Instruction Manual . Use key 1 to select the first digit of the code, use key 2 to select the second digit and so on.
- Then, press the **►**key (toward the right), and keep it pressed until an acoustic warning is heard. The anti-theft codification will be deactivated and the device is turned on.



Note

If an incorrect code number is used when activating the electronic anti-theft system, the „SAFE“ notification will begin flashing on the display, followed by the „1000“ notification. At this time, it is possible to repeat the entire operation. If an incorrect code is entered again, the device will be blocked for approximately one hour meaning, it will non-operational during that time. A device block is indicated on the left side of the display and permanently shows the „SAFE“ notification and the number „2“ (small). This notification will disappear after one hour, at which point it is possible to input the code again with the key in the ignition and the device connected to the vehicle. The »two-attempt-one-hour block cycle« remains valid.



### 3 Loud speakers

- 3.1 Left front bass speaker -R21- ; Right front bass speaker -R23- and/or Left rear bass speaker -R15- ; Right rear bass speaker -R17- - replace

#### 3.1.1 Removal

It is necessary to first remove the respective lining from the door or side in order to replace the speaker.

2-door vehicles:

- Remove the front door and/or rear side lining ⇒ Body - Internal assembly work; Rep. gr. 70 ; Linings/insulation .

4-door vehicles:

- Remove the front and rear door linings ⇒ Body - Internal assembly work; Rep. gr. 70 ; Linings/insulation .

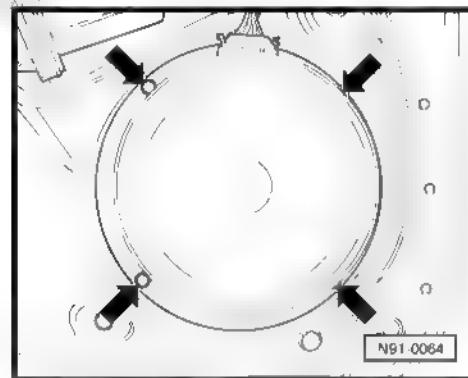
Continued for all vehicles:

- Disconnect the loudspeaker connector.
- Pierce the rivets -arrows- with an appropriate drill and remove the loudspeaker.



#### Note

- It is essential that all shavings from boring holes be removed from the door, otherwise they may cause corrosion damage.
- If the rivet boring operation caused damage to the paint, this damage must be eliminated immediately.



#### 3.1.2 Installation

Installation is performed in reverse sequence to the removal, considering the following:

- Fasten the new speaker using rivets of the proper length and diameter.



#### Note

While reinstalling the door lining, do not forget to place the rubber ring between the lining and the speaker.

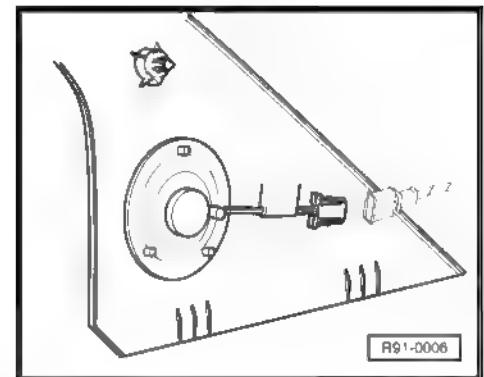
#### 3.2 Left front treble speaker -R20- and/or Right front treble speaker -R22- (front tweeter) - replace

The Left front treble speaker -R20- and/or Right front treble speaker -R22- are integrated in the left and right linings of column A, respectively



### 3.2.1 Removal

- Remove the pillar A lining ➤ Body - Internal assembly works;  
Rep. gr. 70 ; Lining / insulation .
- Disconnect and remove the speaker connector



### 3.2.2 Installation

Installation is performed in reverse sequence to the removal.



## 4 Multifunction steering wheel



### WARNING

*Before working on the electrical system, it is necessary to disconnect the battery earth strap ⇒ Electrical starter; Rep. gr. 27 ; Starter, alternator, battery*



### Note

- ◆ Check whether the vehicle has a coded radio. If so, request the anti-theft code before disconnecting the Battery -A- earth strap.
- ◆ Safe working conditions for repairing the electrical system are created by disconnecting the ground cable from the Battery -A- (interrupting the current).
- ◆ Upon reconnecting the Battery -A-, check the vehicle equipment (radio, clock, power locks and windows, etc.) according to the repair manual and/or instructions for use.

#### General description:

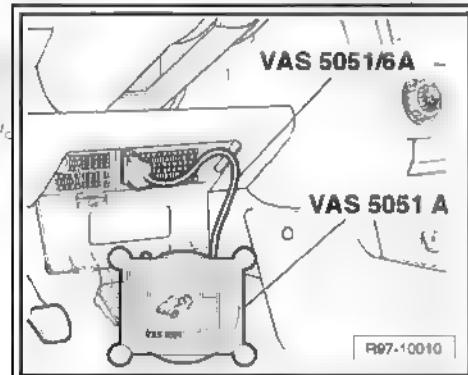
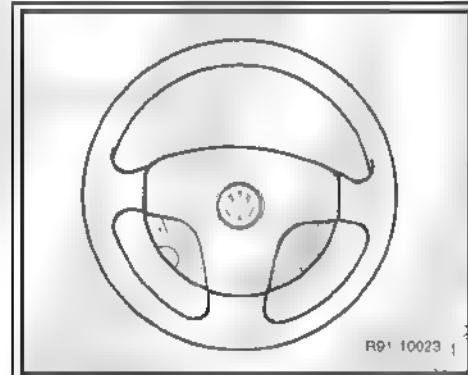
The multi-function steering wheel enables several functions of the radio to be controlled from the steering wheel.

The multifunction steering wheel is equipped with a self-diagnosis feature.

For troubleshooting, use the Diagnosis, Measurement and Information System -VAS 5051A/52- .

#### Locating defects and indicating faults:

For troubleshooting, use the Diagnosis, Measurement and Information System -VAS 5051A/52- .



- Connect the Diagnosis, Measurement and Information System -VAS 5051A/52- to the 16-pin diagnosis connector -T16- ⇒ General information; Rep. gr. 97 ; Cables and wiring harnesses .
- Turn on the ignition.
- Turn off all electrical devices.
- Proceed by selecting the desired functions ⇒ Vehicle diagnostic tester.



### Note

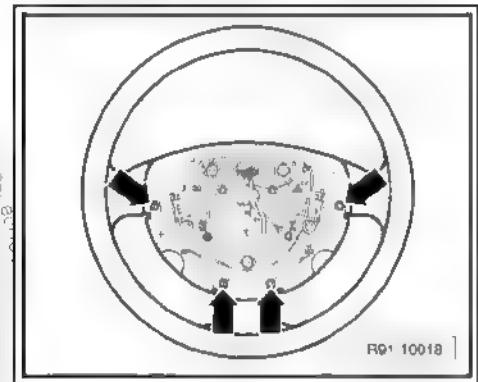
*In case of faults, it is essential to have knowledge on how the multi-function steering wheel operates. Additional information ⇒ Instruction manual .*



## 4.1 Command keys - remove and install

### 4.1.1 Removal

- Remove the Trigger for driver's airbag -N95- ⇒ Body - Internal assembly works. Rep. gr. 69 ; Occupants' protection .
- Disconnect the connector of the control buttons on the steering wheel
- Remove the screws -arrows- for the control unit.
- Remove the control buttons



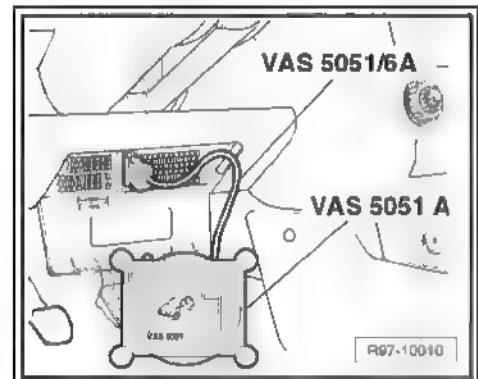
### 4.1.2 Installation

Installation is performed in reverse sequence to the removal.

## 4.2 Multifunction steering wheel - adjust

For adapting, use the Diagnosis, Measurement and Information System -VAS 5051A/52- .

- Connect the Diagnosis, Measurement and Information System -VAS 5051A/52- to the 16-pin diagnosis connector -T16- ⇒ General information; Rep. gr. 97 ; Cables and wiring harnesses .
- Turn on the ignition.
- Turn off all electrical devices.
- Proceed by selecting the desired functions ⇒ Vehicle diagnostic tester.





## 5 Antenna system

The antenna system consists of a roof antenna or a windscreen antenna with an amplifier, depending on the configuration of the vehicle.

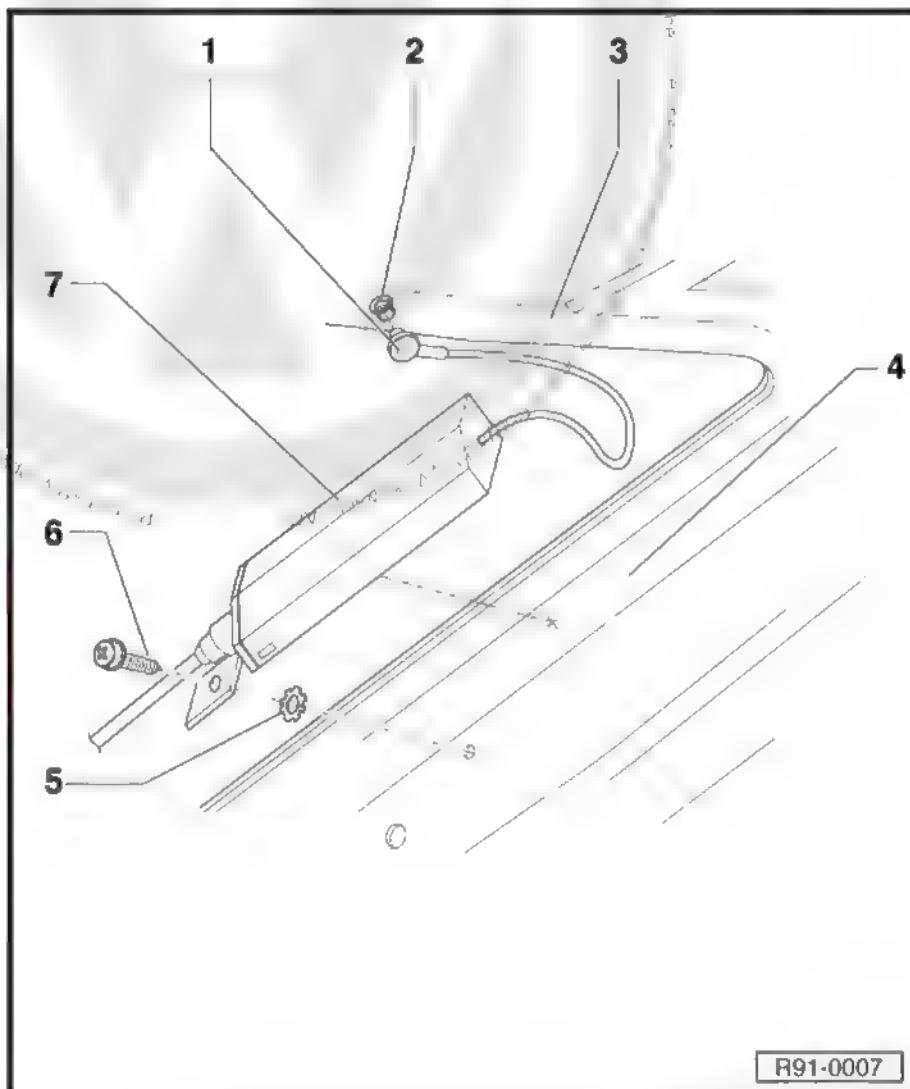


### Note

The windscreen antenna is located on the the right side of the glass or, in the case of vehicles with steering wheels on the right, on the left of the glass, with the amplifier installed in column A

#### 5.1 Windscreen antenna -R31- and/or Antenna amplifier -R24- (► 04/07)

- 1 - Amplifier connector
- 2 - Windscreen connector
- 3 - Windscreen
- 4 - A-pillar
- 5 - Washer
- 6 - Screw
- 1.5 Nm.
- 7 - Antenna amplifier
  - Remove and install  
⇒ [page 39](#).



R91-0007



### 5.1.1 Antenna amplifier -R24- - remove and install



#### Note

*The antenna amplifier is located on the right side of the glass in column A; in the case of vehicles with the steering wheel on the right, it is located on the other side.*

#### Removal:

- Remove the pillar A lining ⇒ Body - Internal assembly works; Rep. gr. 70 ; Lining / insulation .
- Disconnect the connector ⇒ Item 1 (page 38) , and loosen the screw ⇒ Item 6 (page 38) .

#### Installation:

*Installation is performed in reverse sequence to the removal, considering the following:*

- Tighten the fastening screw of the antenna amplifier with a torque of (1.5 Nm).

### 5.2 Antenna -R11- ( ►12/07)



#### Note

*The roof antenna amplifier is installed in the antenna base.*



1 - Antenna mast

2 - Antenna base

- Remove and install  
→ [page 41](#).

3 - Antenna cable

- From the roof antenna to the front center console.

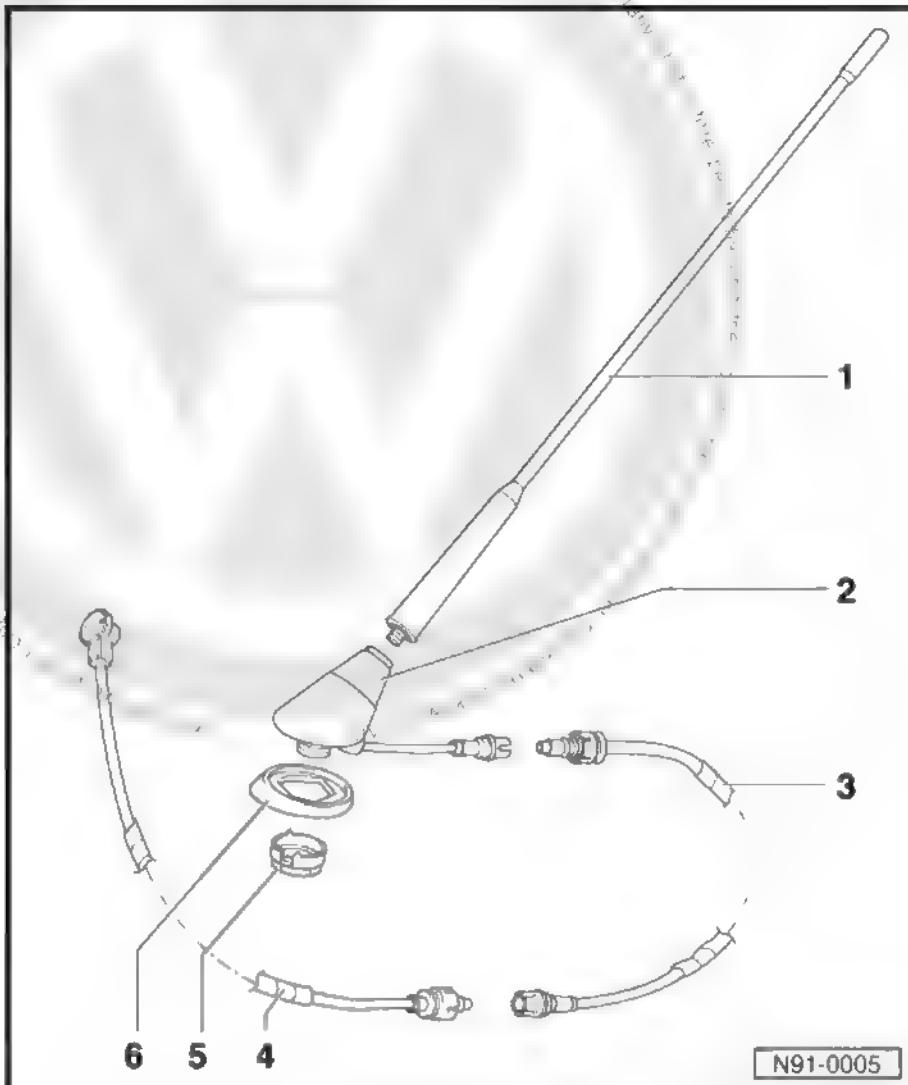
4 - Antenna cable

- From central console to radio.

5 - Hex nut with toothed washer

- The hex nut is connected to the toothed washer via a plastic ring.
- Apply contact grease to the inside part of the roof in the area supporting the toothed washer.

6 - Gasket



### 5.3 Antenna -R11- (01/08 ➤) - except Europe vehicles

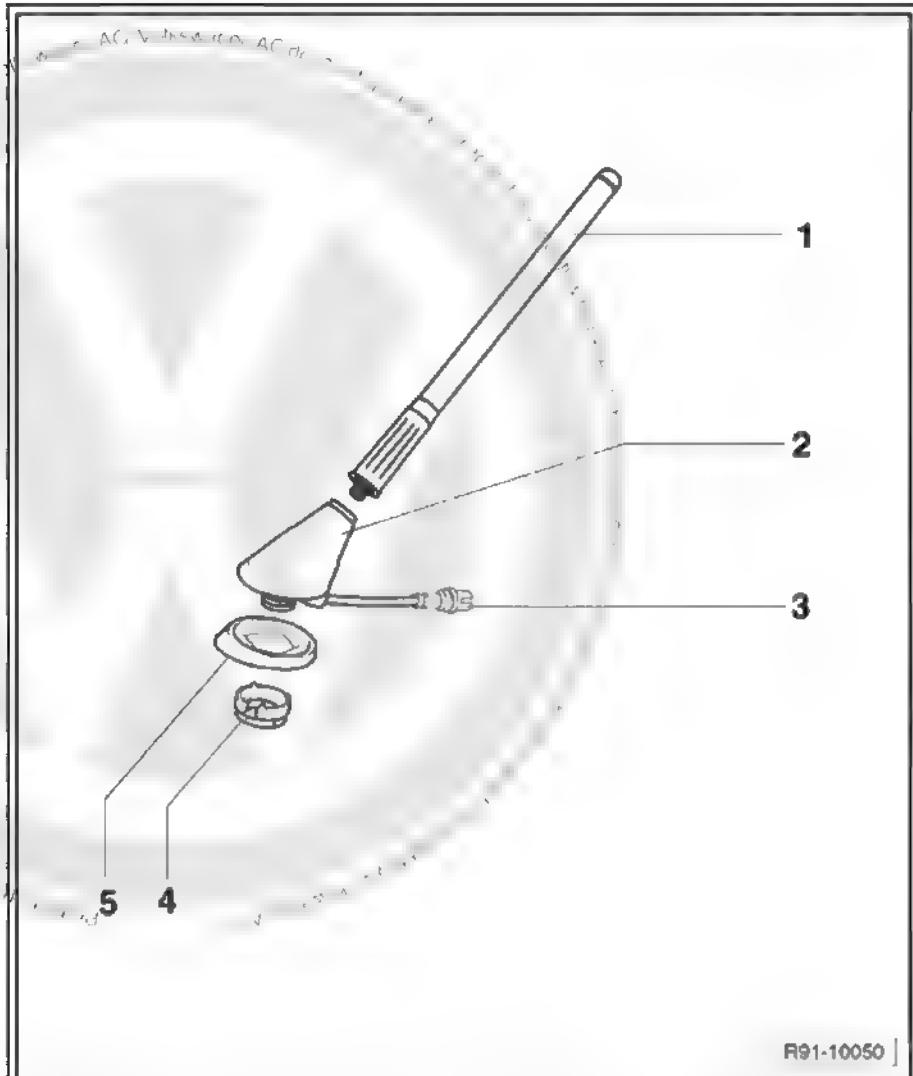


Note

*The roof antenna amplifier is installed in the antenna base.*



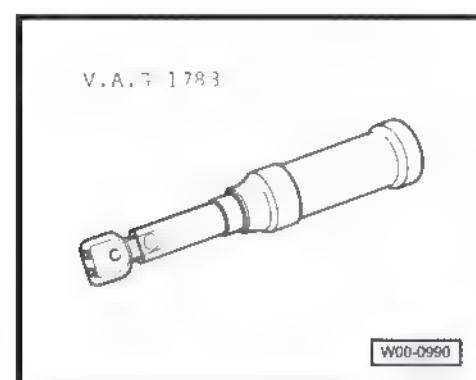
- 1 - Antenna mast
- 2 - Antenna base
- Remove and install  
    → page 41 .
- 3 - Antenna cable
- From the roof antenna  
    to the front center con-  
    sole
- 4 - Hex nut with toothed wash-  
er
- The hex nut is connec-  
    ted to the toothed wash-  
    er via a plastic ring.
- Apply contact grease to  
    the inside part of the roof  
    in the area supporting  
    the toothed washer.
- 5 - Gasket



## 5.4 Antenna -R11- - remove and install

Special tools and workshop equipment required

- ◆ Torque wrench 2 to 10 Nm -VAG 1783-

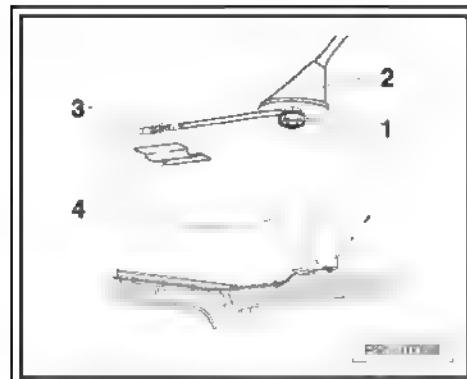


### 5.4.1 Removal

- Move away the pre-molded roof lining at the rear side → Body  
- Internal assembly works; Rep. gr. 70 ; Lining / insulation .



- Remove the adhesive tape -4-, disconnect the antenna cable -3- and release the toothed nut -1-.
- Remove the antenna -2- with its amplifier



## 5.4.2 Installation

Installation is performed in reverse sequence to the removal, considering the following:

- Tighten toothed nut to a torque of (6 Nm).

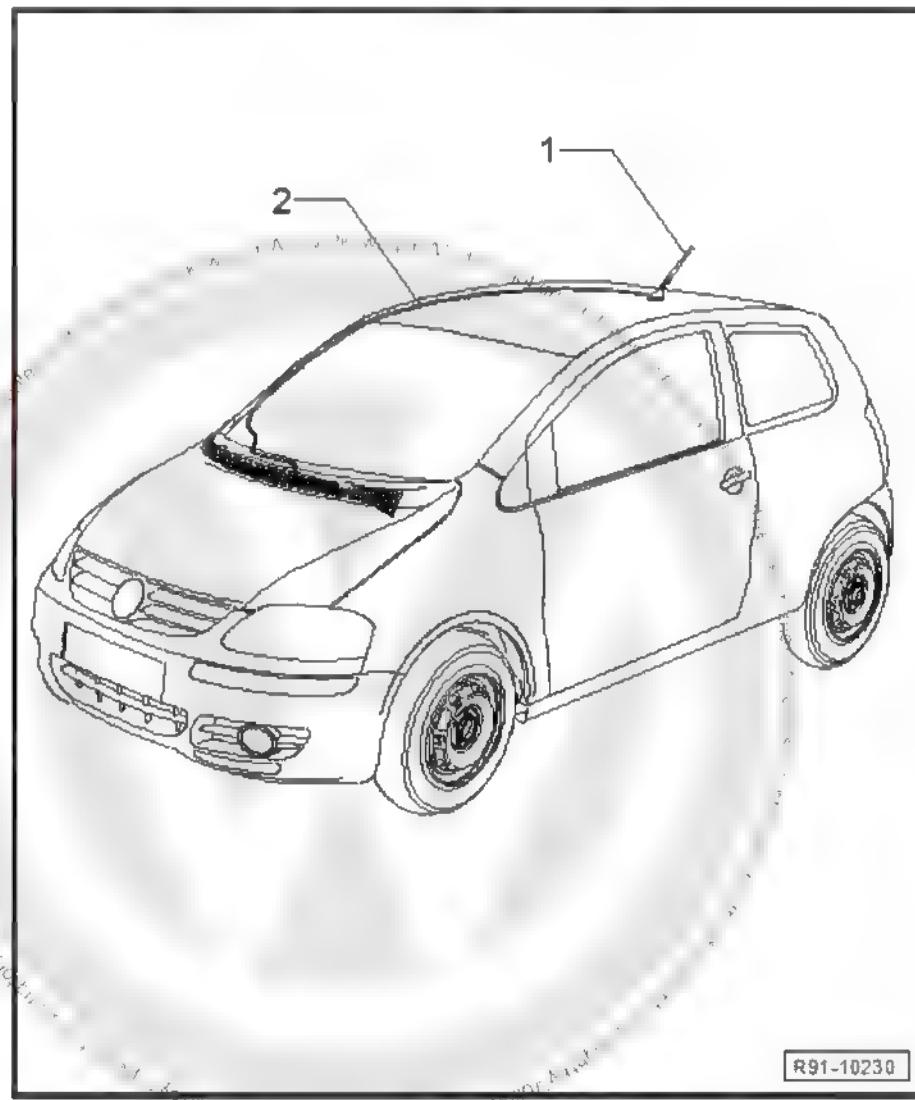
## 5.5 Antenna cable (Fox) - general overview of assembly

### 1 - Antenna -R11-

- Remove and install  
[⇒ page 41](#).

### 2 - Antenna cable

- Remove and install  
[⇒ page 43](#).





## 5.6 Antenna cable (Fox) - remove and install

### 5.6.1 Removal

- Remove the Radio -R- and disconnect the connector form the Antenna cable .
- Remove roof lining ⇒ Vehicle body - Internal assembly work; Rep. gr. 70 ; Linings / insulations
- Remove the instrument panel ⇒ Body - Internal assembly work; Rep. gr. 70 ; Lining / insulation .

For vehicles with sunroof:

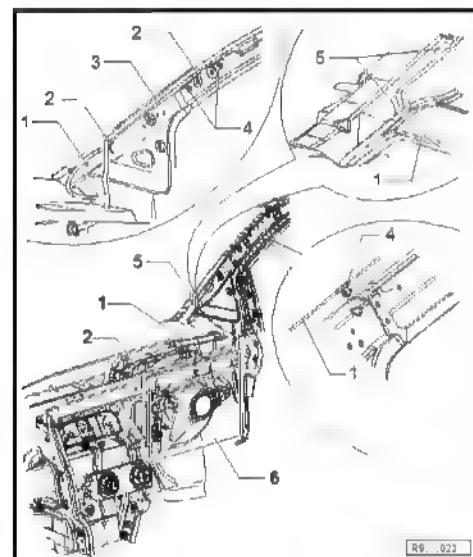
- Remove the elastic fastening belts -2- from the water drainage hose -3-.

Continued for all versions:

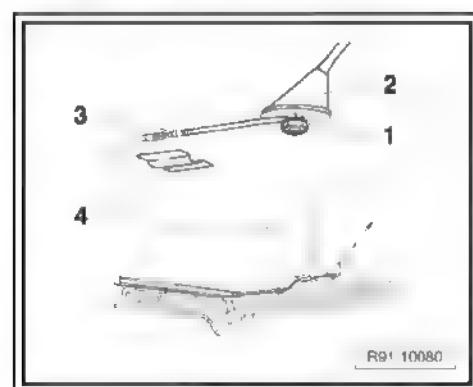
- Disengage the fastening clips -4-.
- Remove the adhesive tape -5- (all along the cable).
- Remove the elastic belts -2- in the transversal support region.



For vehicles with Diesel engines, elastic belts are not installed -2- in the transversal support region; in this case, use the noise insulation fastening -6-.



- Disconnect the connector -3-.
- Remove the Antenna cable .



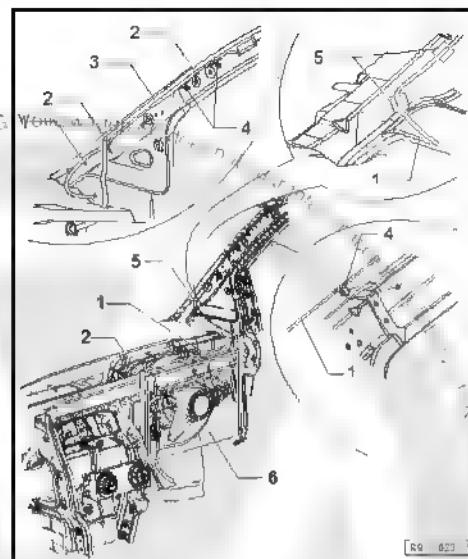


## 5.6.2 Installation

Installation is performed in reverse sequence to the removal, observing the following:



*The fastening clamps -4- and the elastic belts -2- must always be replaced.*





## 6 Observations pertaining to the operation of telephones and radio communication devices (Europe vehicles)

### 6.1 General notes

#### 6.1.1 Mobile telephones or portable radio communication devices should not be used inside the vehicle without the use of independent external antennas.

- ◆ Remote controls (e.g. garage door opening devices) and wireless equipment (e.g. keyboard or mouse), can only be used inside the vehicle when the emission power of the respective device is, at the most, 10 W.
- ◆ Radio communication devices must present an „electronic mark“ (valid only for Europe).
- ◆ Mobile telephones or other radio communications devices (commercial equipment) that are not part of the standard equipment installed in the vehicle, must present a „CE mark“ (valid only for Europe).
- ◆ Pay special attention to the instruction manual and the assembly instructions of the mobile telephone, radio devices and antenna manufacturers.
- ◆ The reach of these devices can only be optimized with the use of an external antenna.
- ◆ If the mobile telephone and radio communication systems are correctly installed, there is no risk of interference in the safety systems, such as ABS brakes and Airbags, as long as their respective installations have not been altered. Avoid parallel connections to these systems.
- ◆ The use of mobile telephones or radio devices without an external antenna or in the event such devices are incorrectly installed, may result in elevated electromagnetic fields within the vehicle.

In these cases, possible adverse health effects or failure in the operation of the electronic system of the vehicle cannot be discounted.

#### 6.1.2 The installation and use of radio communications devices with an emission power of more than 10 Watts is only possible when the following conditions are respected:

- The emissions power at the base of the antenna (consult the manufacturer's data) must not surpass the respective maximum values.
- The installation locations of the antennas indicated in the table must be strictly followed.

Table of emissions powers and locations of installation of the antennas [page 48](#).



## 6.2 Instructions pertaining to assembly work.



### WARNING

*Before working on the electrical system, it is necessary to disconnect the battery earth strap ⇒ Electrical starter; Rep. gr. 27; Starter, alternator, battery.*

Use the suitable electrical diagram ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Pay special attention to the instruction manual and the assembly instructions of the mobile telephone, radio devices and antenna manufacturers.

Attach the harness with clamps for cables. These coupling stations must be insulated with foam sleeves.

### 6.2.1 Emissions power and possible assembly locations

Volkswagen allows for the installation and use of a radio communication device, as long as it does not surpass the values in the emissions power table at the base of the antenna. The locations for obligatory antenna installation are also found in the table ⇒ [page 48](#).

Respect the limiting values in accordance with the VDE 0848 part 2 regulation (maximum field intensities permitted as a function of personal protection). If necessary, reduce the power of emission.

### 6.2.2 Power feed

In the event a radio communication device is installed later, the battery is used to connect the positive and negative cables.

The cables must be:

- Positive: red cable with a diameter of 2.5 mm<sup>2</sup>.
- Negative: brown cable with a diameter of 2.5 mm<sup>2</sup>.

The positive cable must be equipped with a fuse. The fuse box must be attached to the battery. Both cables must be covered in flexible insulation tubes.

Use appropriate connections for the battery.

The connection procedure on the device side must correspond to the instruction manual of the respective device.

Install the additional harness separate from the original harness of the vehicle. The distance between these harnesses must be equal to or more than 10 cm.



#### Note

- Several telephone and radio communications devices require an additional terminal 15 (connection). In these cases, a black cable with a diameter of 1.5 mm<sup>2</sup> is installed from the emission/reception device to terminal 15a ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- When installing the cables, ensure that they are not aligned in parallel with the original cables of the vehicle.



### 6.2.3 Antenna and antenna cable

Use a shielded cable between the radio communication device and the antenna. This cable must be connected on the device side and on the antenna side.

Simultaneously, ensure that the earth strap of the antenna is correctly connected to the vehicle body.

The emission system must be synchronized so as to avoid interference in the antenna cable. Accordingly, verify and tune the system, by measuring the power.

### 6.2.4 Other additional devices

The installation of other electronic equipment (e.g. TV, fax, refrigerator), is only possible if these devices carry the "CE" or "e" symbol.

Power feed may also be executed by means of a separate harness equipped with a fuse.

## 6.3 Radio communication device - general overview

### 1 - Connection to positive

- Red cable with its own connection.

### 2 - Connection to terminal 15a

- Ensure that the cable is protected by a fuse.
- Protection per fuse, max. 15A.

### 3 - Antenna earth strap

- Observe the quality of the connection of the earth strap to the vehicle body.
- Protect the installation location of the antenna from corrosion.

### 4 - Antenna

- Installation locations:  
⇒ [page 48](#).

### 5 - Shielded antenna cable

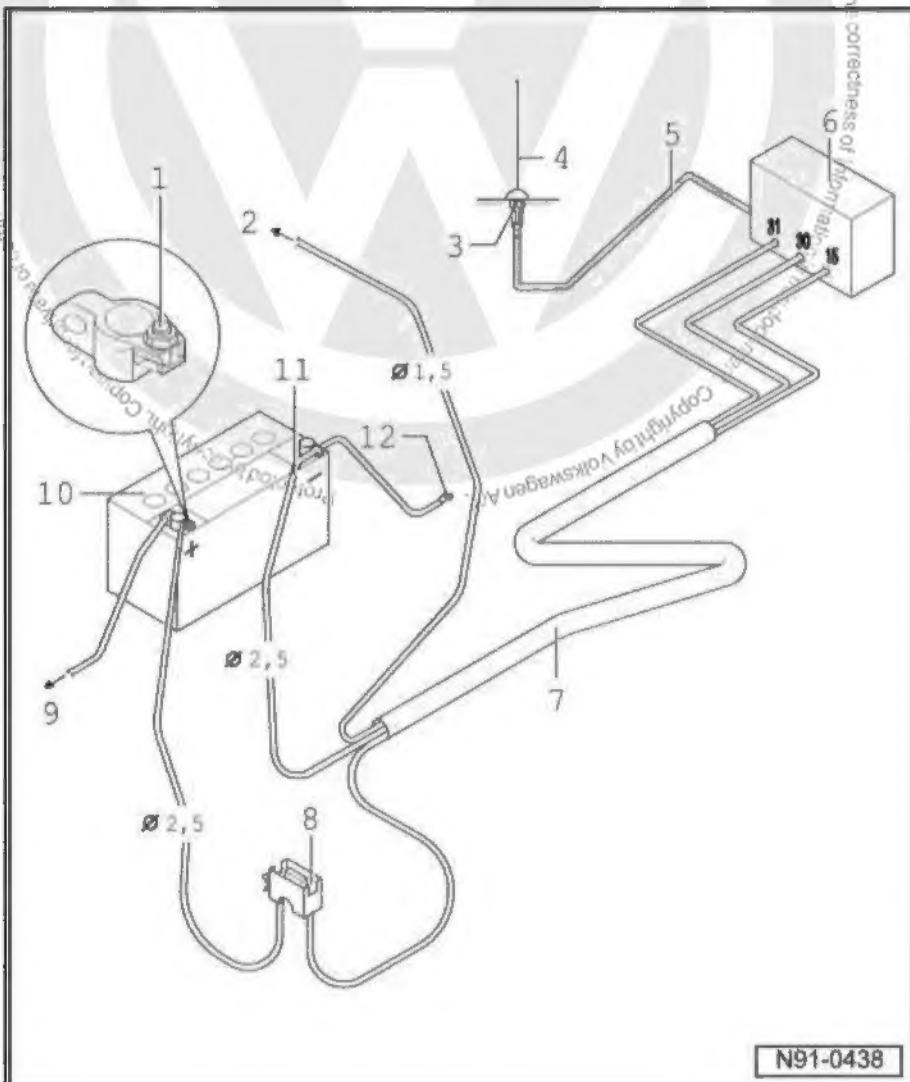
### 6 - Mobile telephone or radio communication device

### 7 - Harness

- Positive cable: red cable with a diameter of 2.5 mm<sup>2</sup>.
- Negative cable: brown cable with a diameter of 2.5 mm<sup>2</sup>.
- If necessary, cable to terminal 15a: black cable with a diameter of 1.5 mm<sup>2</sup>.

### 8 - Fuse holder

- Install near the battery.



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9 - Connection to the starter motor

10 - Battery

- Assembly position in the engine compartment.

11 - Connection to negative

12 - Connection to body earth strap

## 6.4 Emissions powers and locations of installation of the antennas .

### 6.4.1 Fox 2005 ▶

Designation	Pmax/Watt	Locations authorized for installation of antennas
Short wave < 54 MHZ	100 (PEAK) <sup>1)</sup>	All positions on the roof of the vehicle
4 m band	20 (eff.) <sup>2)</sup>	All positions on the outside of the vehicle
2 m band	20 (eff.)	Right mud flap Roof, middle, front Roof, middle Roof, middle, rear
2 m band	50 (eff.)	Roof, middle Roof, middle, rear
70 cm	50 (eff.)	Roof, middle, front Roof, middle Roof, middle, rear
23 cm	20 (eff.)	All positions on the outside of the vehicle
TETRA/ TETRAPOL	25 (eff.)	All positions on the outside of the vehicle
D GSM 900 Network	20 (PEAK)	All positions on the outside of the vehicle
Network E GSM 1800 GSM 1900 UMTS	10 (PEAK)	All positions on the outside of the vehicle

1) PEAK = Peak Envelope Power

2) eff. = power of effective emission



Note

- ◆ *Deviations from the specifications (antenna position, frequency and power) are only permitted in exceptional circumstances, after verification at the EMV center of VW Ag in Wolfsburg.*
- ◆ *EMV = Electromagnetic compatibility.*



## 7 Interference suppression measures

The majority of the electrical devices in the vehicle are equipped with interference suppressors related to operation of the radio.

Interference from the following components are also suppressed in vehicles equipped with or equipped to receive radios:

- ◆ Radiator fan -V7- .
- ◆ Windshield wiper motor -V- .
- ◆ Rear windshield wiper motor -V12- .

Additional ground connections in vehicles equipped with or equipped to receive radios:

- ◆ Left side wheel well ground cable inside the engine compartment.

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